

BLM LIBRARY



88054095



WASHAKIE

**Wilderness Supplement to
Draft Resource Management Plan/EIS**

S
932
.WB
W373
1986

**DRAFT WILDERNESS
ENVIRONMENTAL IMPACT STATEMENT
FOR THE WASHAKIE RESOURCE AREA**

Big Horn, Washakie and Hot Springs counties, Wyoming

Abstract

This draft wilderness environmental impact statement considers the suitability or nonsuitability of five wilderness study areas (WSAs) in the Washakie Resource Area for inclusion in the National Wilderness Preservation System.

The proposed action for each of the five study areas is:

Honeycombs (WY-010-221) - **No Wilderness Alternative**

Cedar Mountain (WY-010-222) - **No Wilderness Alternative**

Medicine Lodge (WY-010-240) - **No Wilderness Alternative**

Alkali Creek (WY-010-241) - **No Wilderness Alternative**

Trapper Creek (WY-010-242) - **All Wilderness Alternative**

To comment, or for further information, contact the following:

Roger Inman, Area Manager
Washakie Resource Area
Bureau of Land Management
P.O. Box 119
Worland, Wyoming 82401
(307)347-9871

Comments will be accepted for 90 days following the date that the Environmental Protection Agency publishes the notice of filing of this draft in the *Federal Register*.

14881702

880-1-10-15


S
932
.W8
W373
1986

**DRAFT WILDERNESS
ENVIRONMENTAL IMPACT STATEMENT
for the
WASHAKIE RESOURCE AREA
WORLAND DISTRICT, WYOMING**

**BLM LIBRARY
SC-324A, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047**

Prepared By:

**U.S. Department of the Interior
Bureau of Land Management
1986**



Wyoming State Director

9-3-86

Date

WYOMING DISTRICT WORKING
WASHAKIE RESOURCE AREA
for the
ENVIRONMENTAL IMPACT STATEMENT
DRAFT WORKING

BLM LIBRARY
20-304A, BLDG. 80
DENVER FEDERAL CENTER
P. O. BOX 35007
DENVER, CO 80235-0007

U.S. Department of the Interior
Bureau of Land Management

[Faint signature and stamp]
WYOMING DISTRICT

SUMMARY

This Environmental Impact Statement (EIS) documents an analysis of the effects of wilderness designation or nondesignation alternatives on 67,610 acres of public land in five Wilderness Study Areas (WSAs). The study areas are all located east of the Bighorn River, within the Big Horn Basin in north-central Wyoming. This EIS was prepared in response to Section 603 of the Federal Land Policy and Management Act (FLPMA) which directs the Bureau of Land Management (BLM) to inventory, study, and report to Congress, through the Secretary of Interior and the President, those public lands suitable for preservation as wilderness.

AREAS OF CONCERN

The wilderness review for the Washakie Resource Area has involved many people. Contacts with organizations, individuals, and federal, state and local agencies have resulted in certain issues being identified as central to the decision on the suitability for wilderness designation of the WSAs in the Washakie Resource Area. The major issues include the impacts wilderness designation could have on mineral exploration and production, livestock grazing, timber harvesting and on range and forest management.

Also of concern were the effects that access to and use of a private inholding may have on wilderness values if the Alkali Creek WSA is designated and the effects that a potential increase in visitation would have on wilderness values.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

This EIS deals with five Wilderness Study Areas (WSAs) and examines two to four alternatives including the proposed action for each WSA. The alternatives analyzed include No Wilderness (No Action), All Wilderness (Existing WSA), Partial Wilderness and Wilderness Enhancement.

The Partial Wilderness Alternative would modify the WSA boundary to reduce or eliminate conflict with other uses and values, and the modified area would be designated as wilderness. Boundary changes under this alternative would decrease the acreage considered for designation.

The Wilderness Enhancement Alternatives modify WSA boundaries to produce an expanded area that would provide more protection of wilderness values. Under this alternative additional boundary changes would be designed to produce an area that could be most easily managed as wilderness, and protected to preserve its wilderness character.

The alternatives considered for each of the five WSAs are summarized below. The proposed action for each WSA is preliminary and is subject to change based on the results of public comment and administrative review.

HONEYCOMBS WSA (WY-010-221)

Unit Description—The Honeycombs WSA, consists of 21,000 acres of public land. In a general sense the unit consists of two landforms. A central core area consists of sharply eroded, strongly dissected badland topography. The remainder of the unit is rolling to steep hills. Elevations range from 4,400 feet to 5,500 feet. Sagebrush and grasses are the most common vegetation. The WSA receives 7 to 10 inches of precipitation annually.

No Wilderness Alternative (Proposed Action)

Under the No Wilderness Alternative, no acreage would be recommended for wilderness designation. Multiple use management would continue under direction of the Washakie RMP. The potential exists that wilderness values could be adversely effected by mineral exploration and development activities. Oil and/or gas exploration activity is likely to occur within the next 50 years. If development follows, wildlife would be temporarily displaced. Additional access associated with possible oil and gas development and grazing management would result in increased motorized recreational use, however, extensive increases in visitation are not expected. The area would be designated as "Limited" for ORVs. Motorized vehicle use would be limited to existing roads and trails.

SUMMARY

All Wilderness Alternative

The All Wilderness Alternative would recommend wilderness designation for all 21,000 acres of public land within the Honeycombs WSA. The designated area would be closed to issuing new oil and gas leases and motorized vehicle travel. Watershed, scenic and wildlife values would be assured long-term protection within the WSA. Activities on adjacent lands have the potential of negatively effecting the quality of primitive recreation and solitude within the WSA.

Wilderness Enhancement Alternative

Under this alternative 22,036 acres would be recommended for designation. This would involve the existing study area plus approximately 1,036 acres of land to be acquired from the state of Wyoming. The area included under this alternative would be a single manageable block with no inholdings. The entire area would be closed to mineral exploration and development subject to valid rights on existing leases.

CEDAR MOUNTAIN WSA (WY-010-222)

Unit Description—Cedar Mountain WSA consists of 21,570 acres of public land. The unit is an area of rugged topography characterized by deep, steep-sided drainages flowing north or west toward the Bighorn River. Cedar Mountain is the dominant visual feature of the unit. It is unusual in the vicinity because of its elevation, which varies from 4,200 to 5,500 feet, the vegetation and the imposing rock escarpment which forms its southern side. The WSA receives 6 to 9 inches of precipitation annually.

No Wilderness Alternative (Proposed Action)

No acreage would be recommended for wilderness designation. Multiple use management would continue under the direction of the Washakie RMP. Mineral leasing would continue, as would other existing uses. Exploratory drilling for oil and gas would be almost certain to occur and if successful development may follow. Oil and gas development activities have potential to

severely impair naturalness and opportunities for solitude and primitive and unconfined types of recreation. Access would increase as development progresses. Wildlife populations would most likely decrease as habitat is lost. An ORV designation would limit vehicle travel to existing roads and trails.

All Wilderness Alternative

This alternative would recommend the 21,570 acres in the existing WSA for wilderness designation. Subject to valid existing rights, oil and gas would not be developed and motorized vehicle use would be restricted. A new ecosystem would be added to the National Wilderness Preservation System (NWPS). The natural character of the designated lands would be protected but the lack of ability to regulate activities on adjacent state sections could make it difficult to maintain wilderness values on much of the designated area. The sights, sounds and smells of sour gas, a common by-product of oil development, could be apparent from adjacent lands.

Wilderness Enhancement Alternative

This alternative would recommend 22,171 acres for wilderness designation. This would include the existing WSA plus an additional 601 acres of land to be acquired from the state. Oil and gas exploration and development would be precluded subject to valid existing rights on existing leases. In most instances lease stipulations would minimize impacts to wilderness values. Wilderness values, scenic quality and wildlife habitat would be preserved within a larger area.

MEDICINE LODGE WSA (WY-010-240)

Unit Description—Medicine Lodge WSA consists of 7,740 acres of public land located on the west slope of the Bighorn Mountains. It is a steeply sloping unit ranging in elevation from 5,100 to 8,200 feet. The average elevation difference between the canyons rims and Medicine Lodge Creek is 1,000 feet. Medicine Lodge Canyon is the unit's dominant visual feature. Vegetation is diverse and includes riparian growth, grasses, shrubs, juniper and forested conifer slopes. The WSA receives 14 to 18 inches of precipitation annually.

SUMMARY

No Wilderness Alternative (Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. Management of the area would continue under guidelines specified in the Washakie Resource Management Plan (RMP) including the West Slope Recreation Area Management Plan, West Slope Habitat Management Plan (HMP) and West Slope Forest Management Plan (FMP). An Area of Critical Environmental Concern (ACEC) would be proposed for designation within a portion of the Medicine Lodge WSA. This ACEC recommendation would be common among all management alternatives considered for this WSA. The ACEC management prescriptions would protect fragile watershed values. Specific management goals would be established in the ACEC management plan to protect water resources within the ACEC. The area would be designated "Closed" on 1,600 acres and as "Limited" for ORVs on the remaining WSA. Motorized vehicle use would be limited to designated roads and trails and by seasons of use. Approximately 70 percent of the WSA would be designated as a "no surface occupancy" zone in order to protect Medicine Lodge Canyon values. Wilderness values outside of Medicine Lodge Canyon and the ACEC area would eventually be lost due to development of mineral and forestry resources. Mineral leasing would occur except within the ACEC. Timber would be available for harvesting on 432 acres.

All Wilderness Alternative

This alternative would recommend all 7,740 acres within the existing Medicine Lodge WSA for wilderness designation. The designated area would be closed to issuing new oil and gas leases. Exploration and development on existing post-FLPMA leases would be subject to wilderness management policy. All commercial forest land and mineral resources would not be available for commodity production. The configuration of the designated area could make management of wilderness values difficult. Due to low oil and gas potential mineral resource production is not expected to be adversely effected.

Wilderness Enhancement Alternative

This alternative would recommend 9,796 acres for wilderness designation. It would add 601 acres of public lands and 1,455 acres of lands to be acquired from the State of Wyoming but administered by the Wyoming State Land Commission and the Wyoming Game and Fish Department. Grazing and mineral leases in effect on the state lands would be valid existing rights. The dugway road would constitute the revised northern boundary of the study area. The inclusion of these lands would enhance manageability by eliminating the threat of nonwilderness activities occurring to the added portion of the area and by providing a more readily recognizable boundary. Mineral leases would not be reissued when they expire.

ALKALI CREEK WSA (WY-010-241)

Unit Description—Alkali Creek WSA consists of 10,100 acres of public land located in a transition zone between the lower slopes of the Bighorn Mountains and the floor of the Big Horn Basin. The unit is an extension of the juniper covered slopes and canyons which characterize the lower west slope of the Bighorns. Elevations range from about 4,850 to 7,000 feet. Vegetation consists primarily of junipers, sagebrush, and grasses. The topography is characterized by small canyons and rock outcrops. Soil and rock color is a dominant visual feature throughout the unit. The WSA receives 10 to 16 inches of precipitation annually.

No Wilderness Alternative (Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. Management of the area would continue under guidelines specified in the Washakie Resource Management Plan (RMP) and West Slope Habitat Management Plan. Mineral leasing would continue, as would other existing uses. The area would be designated as "Limited" for ORVs. Motor

SUMMARY

vehicle use would be limited to designated roads and trails and by seasons of use. Wilderness value would eventually be lost within most of the WSA. Future mineral development could occur. Increased access associated with mineral development and grazing management would increase opportunities for motorized use. Oil, gas, and tar sands would be available for leasing.

All Wilderness Alternative

This alternative would recommend wilderness designation for 10,100 acres of public land within the Alkali Creek WSA. Motor vehicle access to these lands would still be allowed to continue on the cherry-stem road excluded from the designated area or in emergency situations. Existing oil and gas leases and mining claims located in the WSA would constitute valid existing rights. Watershed, recreation and wildlife values would be protected on the designated area but could be affected by actions on the private inholding and cherry-stem road. Operating costs for livestock management would be higher. Silica mining claims, if valid, could be developed.

Partial Wilderness Alternative

This alternative would reduce the existing WSAs size by 1,913 acres, but it would more effectively protect wilderness values. The lands included in this alternative would form a single manageable block with no inholdings.

The threat of nonwilderness related activities occurring from within the WSA on private inholdings would be eliminated, but off-site influences from adjacent private lands could still degrade wilderness values.

Existing uses and rights in the form of mineral leases, mining claims and grazing leases would still be in effect within the designated area.

Wilderness Enhancement Alternative

This alternative would recommend 10,780 acres for wilderness designation. The 680 acre private inholding would be acquired through exchange or purchased. Protection of wilderness values would be maximized by the expanded acreage and elimination of the threat of development on the non-WSA private lands. The cherry-stem road leading into the private inholding would be closed

to vehicle use. Wildlife security would be improved. Operating costs for livestock management would increase mostly due to restrictions on motorized access. Existing uses and rights in the form of mineral leases, mining claims and grazing leases would still be in effect within the designated area.

TRAPPER CREEK (WY-010-242)

Unit Description—Trapper Creek WSA consists of 7,200 acres of public land. Trapper Canyon is one of the most spectacular of the canyons on the west slope of the Bighorn Mountains. The canyon is characterized by nearly vertical sides ranging from 500 to 1,200 feet, with rims approximately 800 feet apart. Vegetation is diverse and consists of a riparian community, a conifer community, a mahogany/juniper zone and a sagebrush/grass community. Elevations range from 4,700 to 8,400 feet. The WSA receives 10 to 18 inches of precipitation annually.

All Wilderness Alternative (Proposed Action)

The 7,200 acres in the Trapper Creek WSA would be recommended for wilderness designation under this alternative. Mineral leasing on 7,200 acres and timber harvesting on 1,324 acres of commercial forest land would be excluded from within the study area. Livestock grazing would continue at current levels. Existing oil and gas leases would be honored as valid existing rights, but exploration and development of these leases would be subject to preservation of wilderness values.

The threat of damaging unique cave ecosystems, ground water supplies, a Class 3 sport fishery and a proposed National Natural Landmark (Evert et al., 1985) would be minimized due to limitations placed on surface disturbing activities. Watershed, wildlife, scenic and wilderness values would be preserved within one of the most unique canyons on the West Slope of the Bighorn Mountains.

No Wilderness Alternative

There would be no acreage recommended for wilderness designation under this alternative.

SUMMARY

Management of the area would continue under guidelines specified in the Washakie Resource Management Plan (RMP) including the West Slope Habitat Management Plan (HMP), Spanish Point Karst ACEC, West Slope Forest Management Plan (FMP) and West Slope Recreation Area Management Plan (RAMP).

The area would be designated "Closed" on 1,200 acres and "Limited" to ORVs on the remaining WSA. Motor vehicle use would be limited to desig-

nated roads and trails and by seasons of use. Approximately 80 percent of the WSA would be designated as a "no surface occupancy" zone in order to protect resource values in Trapper Canyon. Mineral leasing would occur except within the ACEC. Timber harvesting and tar sand development would be expected to have adverse impacts on watershed, scenic wildlife and wilderness values, although the physical character of the WSA would limit extent of activities.

TABLE 1
WSA's AND ALTERNATIVES ANALYZED
IN THE WILDERNESS SUITABILITY EIS:
WASHAKIE RESOURCE AREA

WSAs Name Area Number	Acres Within Alternatives Analyzed			
	No Wilderness	All Wilderness/ Existing WSA	Wilderness Enhancement	Partial Wilderness
Honeycombs WY-010-221	0 ¹	21,000	22,036	NA
Cedar Mountain WY-010-222	0 ¹	21,570	22,171	NA
Medicine Lodge WY-010-240	0 ¹	7,740	9,796	NA
Alkali Creek WY-010-241	0 ¹	10,100	10,780	8,187
Trapper Creek WY-010-242	0	7,200 ¹	NA	NA
Total WSA Acres		67,610		

¹ Proposed Action for each WSA

TABLE OF CONTENTS

CHAPTER 1: PURPOSE AND NEED	1
BACKGROUND	1
WILDERNESS REVIEW REQUIREMENTS	1
Inventory	1
Wilderness Values	1
Diversity in the National Wilderness Preservation System	1
Study	3
Reporting	3
Interim Management	3
ISSUE SCOPING	3
MANAGEABILITY	4
CHAPTER 2: ALTERNATIVES INCLUDING THE PROPOSED ACTION	5
FORMULATION OF ALTERNATIVES	5
ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY	5
ALTERNATIVES CONSIDERED IN DETAIL	5
DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION FOR EACH WSA	6
Honeycombs WSA—No Wilderness	6
Honeycombs WSA—All Wilderness	8
Honeycombs WSA—Wilderness Enhancement	8
Cedar Mountain WSA—No Wilderness	12
Cedar Mountain WSA—All Wilderness	14
Cedar Mountain WSA—Wilderness Enhancement	14
Medicine Lodge WSA—No Wilderness	18
Medicine Lodge WSA—All Wilderness	24
Medicine Lodge WSA—Wilderness Enhancement	24
Alkali Creek WSA—No Wilderness	26
Alkali Creek WSA—All Wilderness	28
Alkali Creek WSA—Wilderness Enhancement	28
Alkali Creek WSA—Partial Wilderness	28
Trapper Creek WSA—All Wilderness	33
Trapper Creek WSA—No Wilderness	33
CHAPTER 3: AFFECTED ENVIRONMENT	41
INTRODUCTION	41
HONEYCOMBS	41
Mandatory Wilderness Characteristics	41
Special Features	42
Other Resource Values	43
CEDAR MOUNTAIN	52
Mandatory Wilderness Characteristics	52
Special Features	54
Other Resource Values	54
MEDICINE LODGE	62
Mandatory Wilderness Characteristics	62
Special Features	65

TABLE OF CONTENTS

Other Resource Values	65
ALKALI CREEK	74
Mandatory Wilderness Characteristics	74
Special Features	76
Other Resource Values	76
TRAPPER CREEK	84
Mandatory Wilderness Characteristics	84
Special Features	86
Other Resource Values	87
CHAPTER 4: ENVIRONMENTAL CONSEQUENCES	99
INTRODUCTION	99
IMPACTS COMMON TO THE NO WILDERNESS ALTERNATIVES	99
HONEYCOMBS	100
No Wilderness (Proposed Action)	100
All Wilderness	101
Wilderness Enhancement	102
CEDAR MOUNTAIN	103
No Wilderness (Proposed Action)	103
All Wilderness	104
Wilderness Enhancement	106
MEDICINE LODGE	106
No Wilderness (Proposed Action)	106
All Wilderness	108
Wilderness Enhancement	110
ALKALI CREEK	111
No Wilderness (Proposed Action)	111
All Wilderness	112
Partial Wilderness	114
Wilderness Enhancement	114
TRAPPER CREEK	115
All Wilderness (Proposed Action)	115
No Wilderness	117
CHAPTER 5: CONSULTATION AND COORDINATION	121
COORDINATION AND PUBLIC INVOLVEMENT	121
Introduction	121
Public Involvement	121
Consistency	121
Distribution	121
Other Contacts	122
PREPARERS	123
RMP/EIS Core Team	123
Interdisciplinary Team	124
Support Services (Worland District)	124
APPENDIX A	125
APPENDIX B	127
APPENDIX C	128

TABLE OF CONTENTS

APPENDIX D	130
APPENDIX E	133
APPENDIX F	136
GLOSSARY	137
REFERENCES	141

MAPS

Map 1 General Location	xi
Map 2 Existing WSAs Less than 5,000 Acres	2
Map 3 Honeycombs, Oil and Gas Lease Restrictions	7
Map 4 Honeycombs, Alternatives	9
Map 5 Cedar Mountain, Oil and Gas Lease Restrictions	13
Map 6 Cedar Mountain, Alternatives	15
Map 7 Medicine Lodge, Oil and Gas Lease Restrictions	19
Map 8 Spanish Point Karst ACEC within Medicine Lodge WSA	20
Map 9 Medicine Lodge, Alternatives	21
Map 10 Alkali Creek, Oil and Gas Lease Restrictions	27
Map 11 Alkali Creek, Alternatives	29
Map 12 Trapper Creek, Oil and Gas Lease Restrictions	34
Map 13 Spanish Point Karst ACEC within Trapper Creek WSA	35
Map 14 Trapper Creek Alternatives	38
Map 15 Honeycombs, Oil and Gas Lease Status	46
Map 16 Honeycombs, Leasable Mineral Potential (Oil and Gas)	47
Map 17 Honeycombs, Leasable Mineral Potential (Coal)	48
Map 18 Honeycombs, Locatable and Salable Mineral Potential	49
Map 19 Honeycombs, Grazing Allotments	51
Map 20 Cedar Mountain, Oil and Gas Lease Status	57
Map 21 Cedar Mountain, Leasable Mineral Potential (Oil and Gas)	58
Map 22 Cedar Mountain, Leasable Mineral Potential (Coal)	59
Map 23 Cedar Mountain, Locatable and Salable Mineral Potential	60
Map 24 Cedar Mountain, Grazing Allotments	61
Map 25 Medicine Lodge, Forest and Woodland Resources	67
Map 26 Medicine Lodge, Oil and Gas Lease Status	70
Map 27 Medicine Lodge, Leasable Mineral Potential	71
Map 28 Medicine Lodge, Locatable and Salable Mineral Potential	72
Map 29 Medicine Lodge, Grazing Allotments	73
Map 30 Alkali Creek, Oil and Gas Lease Status	79
Map 31 Alkali Creek, Leasable Mineral Potential	80
Map 32 Alkali Creek, Locatable and Salable Mineral Potential	81
Map 33 Alkali Creek, Grazing Allotments	83
Map 34 Trapper Creek, Forest and Woodland Resources	90
Map 35 Trapper Creek, Oil and Gas Lease Status	92
Map 36 Trapper Creek, Leasable Mineral Potential	93
Map 37 Trapper Creek, Locatable and Salable Mineral Potential	94
Map 38 Trapper Creek, Grazing Allotments	95

TABLE OF CONTENTS

TABLES

SUMMARY

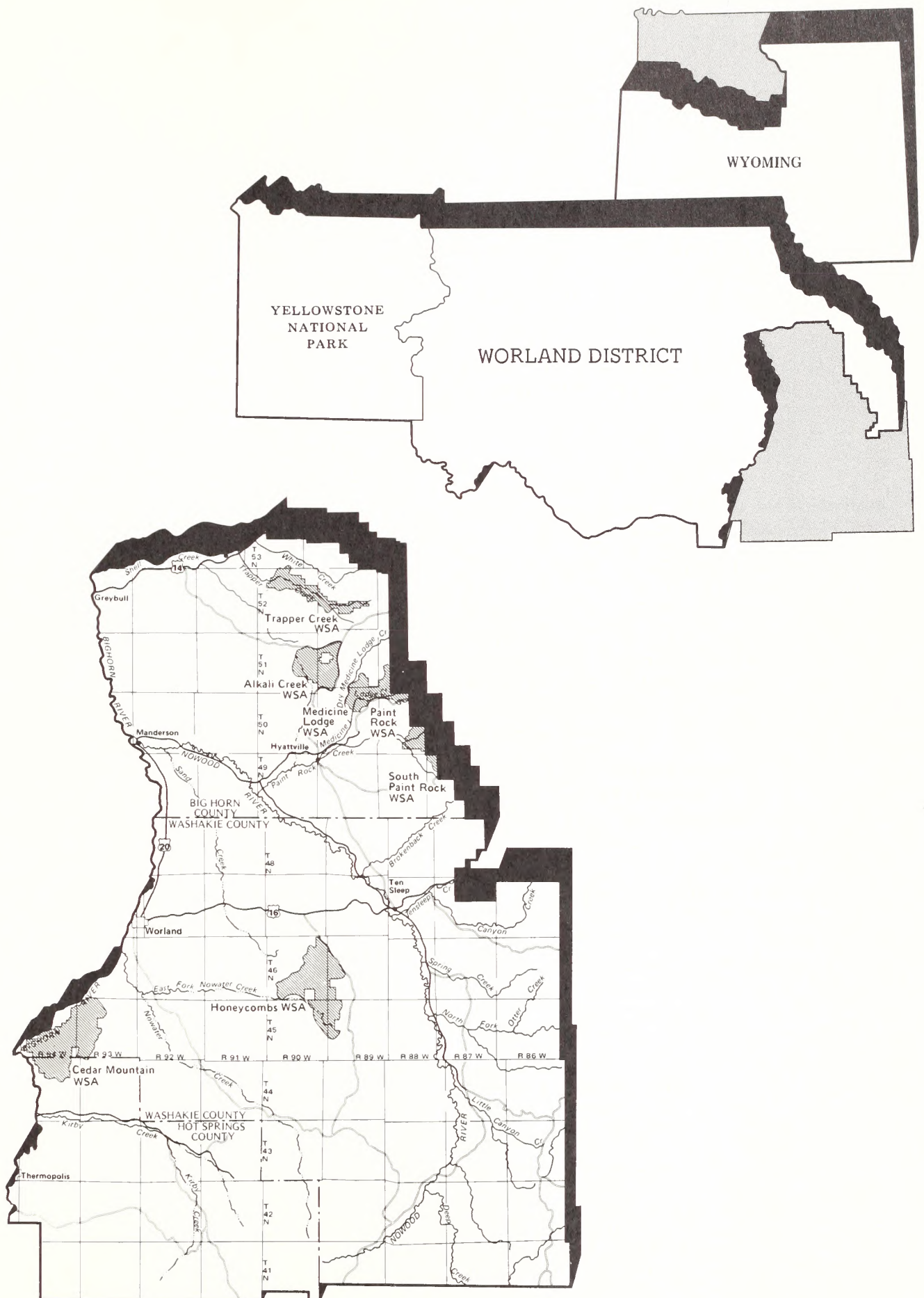
Table 1	WSAs and Alternatives Analyzed in the Wilderness Suitability EIS: Washakie Resource Area	v
---------	--	---

CHAPTER 2

Table 2	Comparative Summary of Impacts by Alternatives Honeycombs	11
Table 3	Comparative Summary of Impacts by Alternatives Cedar Mountain	17
Table 4	Comparative Summary of Impacts by Alternatives Medicine Lodge	24
Table 5	Comparative Summary of Impacts by Alternatives Alkali Creek	31
Table 6	Comparative Summary of Impacts by Alternatives Trapper Creek	39

CHAPTER 3

Table 7	Oil and Gas Exploration Activity in the Big Horn Basin.....	50
Table 8	Honeycombs Livestock Grazing Allocations	52
Table 9	Cedar Mountain Livestock Grazing Allocations	62
Table 10	Medicine Lodge Livestock Grazing Allocations.....	74
Table 11	Alkali Creek Livestock Grazing Allocations	82
Table 12	Trapper Creek Livestock Grazing Allocations	96



Map 1
GENERAL LOCATION MAP
Washakie Wilderness Study Areas

CHAPTER 1

PURPOSE AND NEED

Section 603 of the Federal Land Policy and Management Act (FLPMA) of October 21, 1976 directs the Bureau of Land Management (BLM) to inventory and study all public lands to identify lands suitable for inclusion in the National Wilderness Preservation System (NWPS) and then to report to Congress through the Secretary of the Interior and the President.

This EIS analyzes the effects on resource uses and values that would result from designation or nondesignation of wilderness of the five Wilderness Study Areas (WSAs) in the Washakie Resource Area.

Paint Rock and South Paint Rock WSAs, each containing less than 5,000 acres, qualified as WSAs because they were contiguous to the Bighorn National Forest Rare II further planning area. Subsequently the passing of the Wyoming Wilderness Act of October 30, 1984, eliminated the U. S. Forest Service (USFS) further planning area, thereby removing the basis for originally including Paint Rock and South Paint Rock WSAs in the wilderness review process. Due to this change in circumstances, the Worland District Office has requested that the Paint Rock and South Paint Rock WSAs be dropped from further analysis. A final decision to delete these two WSAs is pending Secretary of the Interior approval.

BACKGROUND

This document is a supplement to the BLM's Washakie Resource Area Resource Management Plan/Environmental Impact Statement (RMP/EIS). The RMP/EIS presents alternatives for management of all the resources in the Washakie Resource Area and specifies the agency's preferred alternative. The proposed action resulting from the analysis in this document are incorporated in the RMP and assumed as management common to all alternatives. Congress has the option to adopt recommendations identified in this document or to modify or reverse the recommendations.

The Wyoming State Director, BLM, has the authority to approve the RMP, excluding the wilderness proposals. For that reason this Wilderness EIS supplement will be separated from the final RMP/EIS and the final legislative

wilderness EIS will be filed with the Secretary of the Interior, and distributed, after which the Secretary will make his recommendations to the Congress, through the President.

WILDERNESS REVIEW REQUIREMENTS

Inventory

The guidelines for conducting the wilderness inventory are contained in BLM's "Wilderness Inventory Handbook" of 1978 (available at the BLM offices). Using these guidelines, seven areas were identified as WSAs in the Washakie Resource Area of the Worland District.

Wilderness study areas being considered for wilderness designation were evaluated for the features described below:

Wilderness Values

Size. The area must have at least 5,000 contiguous roadless acres of public land.

Naturalness. Human imprints must be substantially unnoticeable.

Outstanding Opportunities. The area must offer either an outstanding opportunity for solitude or an outstanding opportunity for primitive and unconfined recreation.

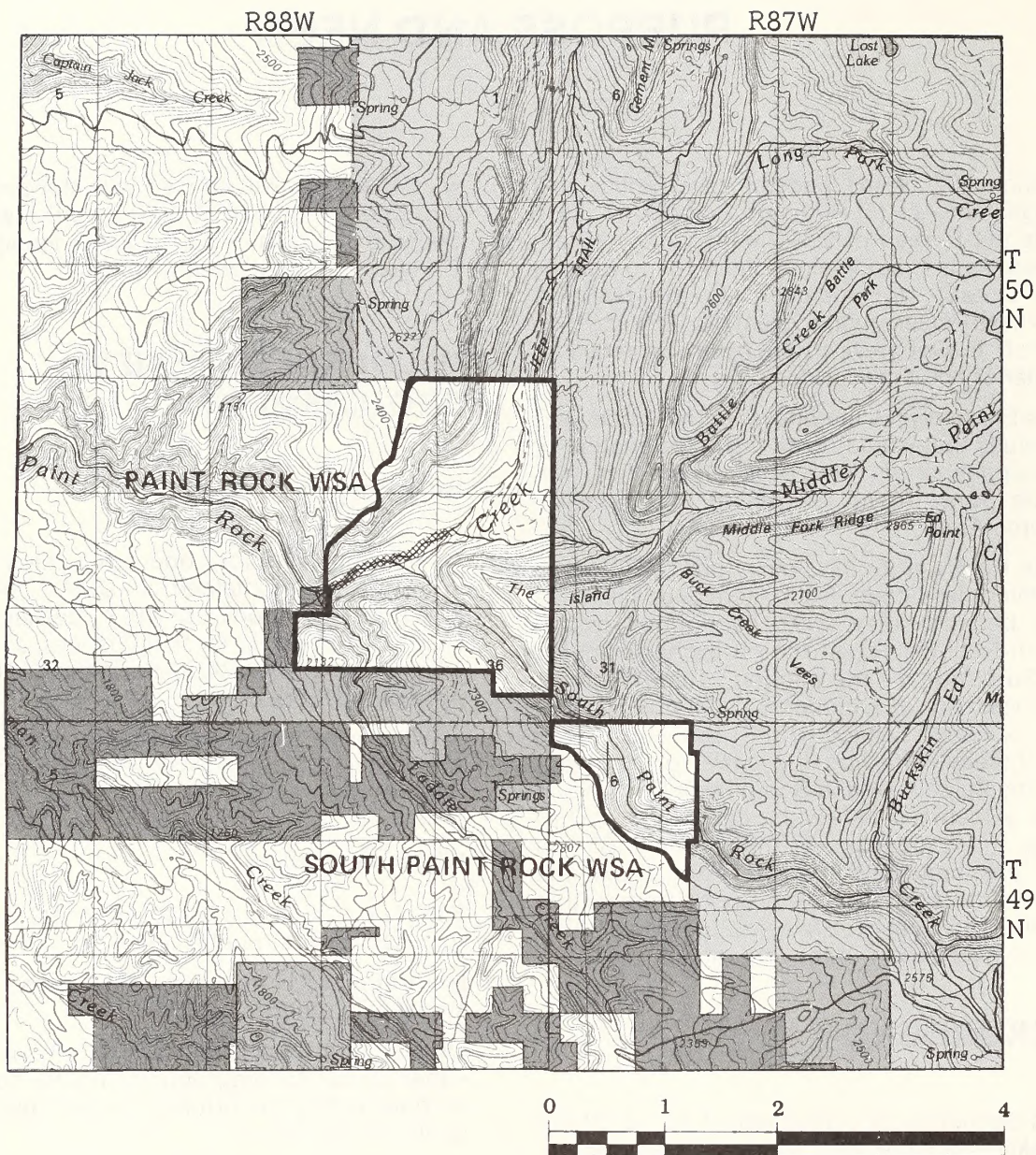
The BLM also considered the extent to which each of the following wilderness values is present:

Special Features. Ecological, geological, or other features of scientific, educational, scenic, or historical value.

Multiple Resource Benefits. The benefits to other multiple resource values and uses that only wilderness designation could ensure.

Diversity in the National Wilderness Preservation System

The WSAs contain a number of dominant physical and biological characteristics that can be integrated and classified into regional units called ecosystems. The classification of eco-



- Federal Surface Ownership (BLM)
- Federal Surface Ownership (USFS)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Excluded Area

Map 2
PAINT ROCK WSA (WY-010-239)
SOUTH PAINT ROCK WSA (WY-010-236)
 Existing WSAs Less Than 5,000 Acres

PURPOSE AND NEED

systems is based on an integration of natural factors such as climate, vegetation, soils, and landform. The BLM has classified the ecosystems in the WSAs according to the Bailey-Kuchler classification system (USDA, FS and USDI, GS 1976).

Ecosystem diversity of the five WSAs under consideration for wilderness designation will not be analyzed further within this document, but will be included in the forthcoming Wilderness Study Reports prepared for each WSA.

Study

During the study phase, the BLM determines through careful analysis which study areas will be recommended as suitable for wilderness designation and which will not. The proposed action for each WSA was selected through the BLM's land use planning process by applying criteria and quality standards developed for analytical purposes. These criteria and quality standards were developed by the Bureau for conducting wilderness studies on public lands and are further described in the "Wilderness Study Policy" available at any BLM office.

The proposed action for this EIS recommends four WSAs as nonsuitable for wilderness designation and recommends the Trapper Creek WSA as suitable under the All Wilderness Alternative. These recommendations are preliminary and are subject to change based on the results of public comments and administrative review.

Reporting

The reporting phase begins after completion of the draft RMP/EIS, when a wilderness study report and a preliminary final EIS are prepared to document the results of the study and make the preliminary recommendations as to designation or nondesignation of each WSA.

All recommendations of WSAs as suitable or nonsuitable for designation as wilderness will be reported through the director of the BLM to the Secretary of the Interior, and through the Secretary of the Interior to the President, who will make his recommendation to Congress. Only Congress can designate an area as wilderness.

Interim Management

Until Congress acts, the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (1979 [rev. 1983]) serves as the principal direction for managing the WSAs in the Washakie Resource Area. The goal of the Interim Management Policy is to ensure that the wilderness qualities inherent to each WSA are unchanged at the time that Congress makes its final decisions.

ISSUE SCOPING

Issues were identified by the BLM, general public and other federal, state and local governments during the wilderness review process. Public comment periods, open houses, public meetings and mail solicitations gathered information about public wilderness views and concerns. The participation of these groups resulted in the identification of certain key issues to be considered in the wilderness EIS.

Following is a listing of major environmental issues and impact topics selected for detailed analysis in this EIS. These issues have been identified due to environmental effects resulting from wilderness designation or nondesignation of the five WSAs analyzed. These issues were also used to organize and guide the impact analysis in Chapter 4, Environmental Consequences.

1. Effects on wilderness values including naturalness, solitude and primitive and unconfined recreation.
2. Effects on recreation opportunities including the use of motorized vehicles and the quality of recreation.
3. Effects on elk, antelope, mule deer, fish populations and threatened or endangered species including bald eagles and peregrine falcons.
4. Effects on and from mineral exploration and development.
5. Effects on and from livestock production and management.
6. Effects on water quality and associated wetlands.
7. Effects on and from timber production.

PURPOSE AND NEED

Wilderness designation would result in slight economic impacts associated with effects on recreation, livestock grazing, timber production and mineral production. Since these effects would be localized and are not expected to significantly change the economy within the Big Horn Basin, overall economic effects have been considered insignificant and will not be analyzed.

The effects on and from non-federal lands was initially considered an issue but since the wilderness enhancement alternatives contain various management prescriptions for adjacent private and state land, further analysis of this topic was felt unnecessary.

The effects on archeological sites and soil productivity also had initial consideration as sig-

nificant issues. Impacts to these resources are analyzed under the Impacts Common to the No Wilderness Alternatives heading in the Environmental Consequences, Chapter 4.

MANAGEABILITY

All WSAs recommended suitable for wilderness designation must be capable of being effectively managed to preserve their wilderness character. The manageability of the five WSAs is not addressed within this document, but will be included in the forthcoming Wilderness Study Reports.

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

FORMULATION OF ALTERNATIVES

The BLM's wilderness study policy requires that a Wilderness EIS address "no wilderness," "no action," and "all wilderness" alternatives for each area under wilderness consideration. In addition to these required alternatives, other alternatives may be considered to provide a full range of management options.

This wilderness EIS describes five wilderness study areas and analyzes in detail two to four alternatives for each WSA. For each WSA the No Wilderness Alternative constitutes no action, therefore separate alternatives were not developed.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

No additional alternatives were considered for the Honeycombs, Cedar Mountain, Alkali Creek, or Trapper Creek WSAs.

Medicine Lodge WSA

The following alternatives were considered:

1. A partial wilderness alternative was considered that would have excluded uplands adjacent to the canyon rim. This alternative would have recommended designation of a Medicine Lodge Canyon corridor. It was concluded that the resulting area was of insufficient size to meet wilderness suitability requirements and, therefore, the partial wilderness alternative need not be analyzed further.
2. An additional wilderness enhancement alternative was considered for the Medicine Lodge WSA that included the entire Medicine Lodge Wildlife Habitat Management Unit. The boundaries of this alternative would have been the existing Cold Springs Road to the south, Dry Medicine Lodge Canyon to the north and the Bighorn National Forest to the

east. It was concluded that this alternative was not realistic since the dugway road would have been within the designated area. Inventory information concluded that this road was definitely used and maintained on a regular basis, therefore disqualifying the area from further consideration.

ALTERNATIVES CONSIDERED IN DETAIL

No Wilderness. (No Action) With this alternative no acreage in the WSA would be recommended for wilderness designation. The area would be managed in accordance with guidelines specified in the Washakie Resource Management Plan (RMP) and Bureau laws and regulations. The No Wilderness Alternative is also considered as a No Action Alternative in this EIS.

All Wilderness. With this alternative, a WSA would be recommended suitable for wilderness designation with no modifications to the existing WSA boundary. The management objectives and policies that would be applied to areas designated as wilderness are stated in the BLM's Wilderness Management Policy, available at any BLM office.

Partial Wilderness. The WSA boundaries would be modified with this alternative to reduce conflicts with other uses, and the modified area would be recommended suitable for wilderness designation. Boundary changes identified in this alternative results in reduced acreage being considered for designation. Partial wilderness alternatives were not identified for four of the five WSAs because it was decided that no opportunity to modify boundaries exists that would significantly reduce conflicts with other uses within those WSAs.

Wilderness Enhancement. This alternative modifies WSA boundaries in order to produce an area that would be most effectively managed as wilderness and provide protection to preserve the wilderness character. The entire modified WSA would be recommended suitable for wilderness designation. The Governor of Wyoming has suggested that state lands, i.e., surface estate, mineral estate, or both, within or immediately adjacent to WSAs, be considered for federal exchange. Therefore, state lands are addressed in the Wilderness Enhancement Alternatives.

DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION FOR EACH WSA

Honeycombs WSA—No Wilderness Alternative (Proposed Action)

With this alternative, none of the 21,000 acres would be recommended for wilderness designation and the area would be managed as described below:

Minerals Management. All 21,000 acres in the present Honeycombs WSA would be available for oil and gas leasing under this alternative. Based on drilling history in the Big Horn Basin and the high potential for oil and gas occurrence an estimated eight exploratory wells would be drilled within the WSA in the next 50 years. Each of these exploratory wells would have approximately a 14 percent chance of developing into a producing well. A producing well could result in the development of a field of unknown extent. It should be noted that this projection is based on a statistical average estimate. What actually would occur may differ from the estimate.

Approximately 2.5 acres per well site of surface disturbance is likely during drilling and production operations. Access road construction constitutes approximately 2.25 acres per mile of disturbance for each mile of road constructed. An average of two miles of new road is constructed for each well site, this would result in a total surface disturbance of seven acres per well site, or 56 acres for the eight wells. (This most likely to occur "scenario" will be referenced in the Environmental Consequences). This scenario identifies impacts resulting from exploratory wells only. If field development occurs surface disturbance could increase substantially. Potential impacts on scenic quality, watershed and wildlife values from oil and gas exploration and development would be minimized because:

1. Approximately 3,150 acres or 15 percent of the WSA would be subject to no surface disturbance due to slopes over 25 percent. This acreage is scattered throughout the WSA and as such is not mapped.
2. About 160 acres within the WSA would be subject to no surface occupancy for purposes of protecting known sage grouse strutting habitat.

3. Approximately 8,400 acres or 40 percent of the WSA currently would be subject to a seasonal restriction on surface disturbing activities during the period from February 1 to July 31 in order to protect known sage grouse nesting habitat.

The complete wording of these stipulations is described in the Wyoming BLM Standard Stipulations for Surface Disturbing Activities (Appendix E).

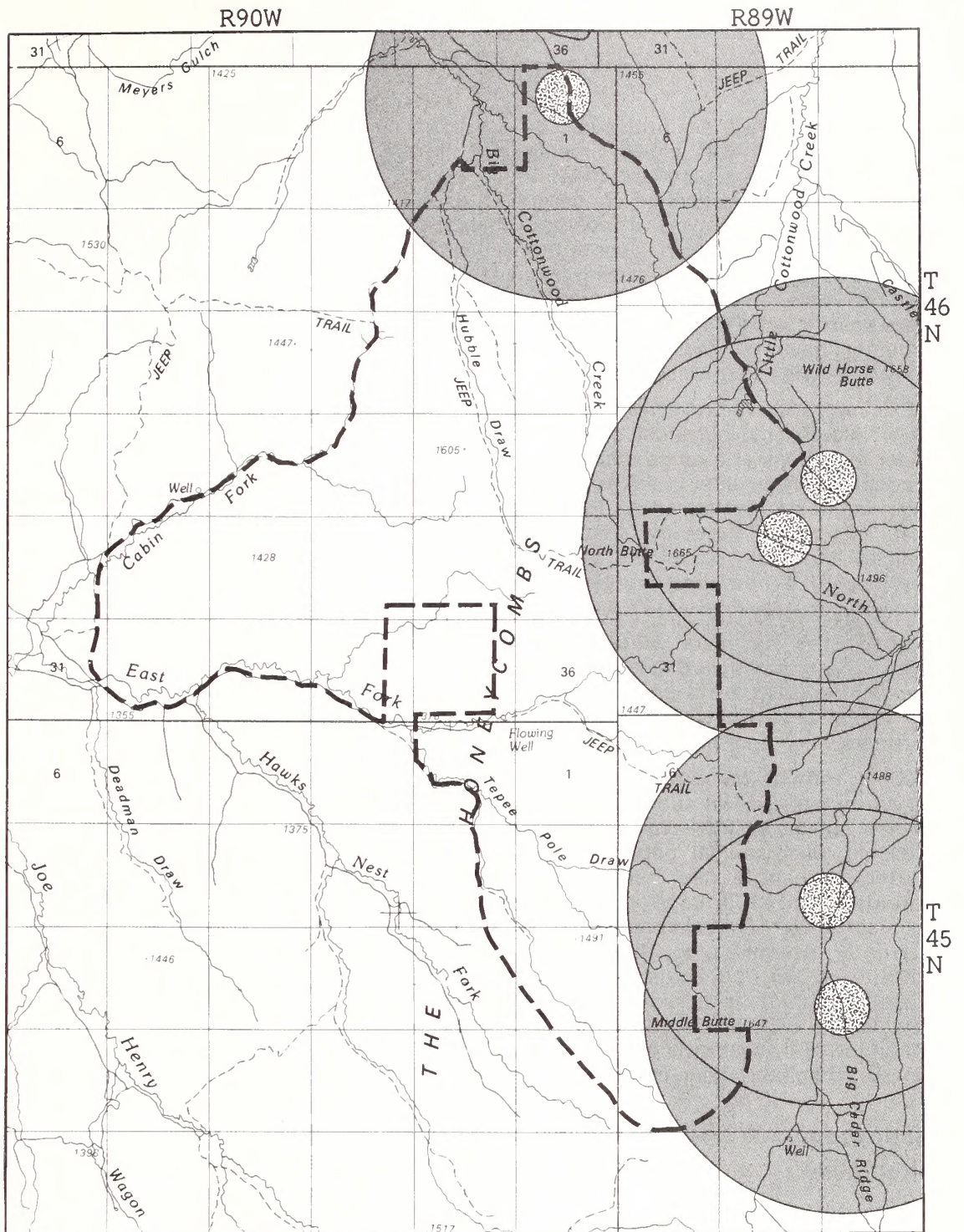
Several stipulations may apply similar restrictions to the same tract of land to protect different resource uses or values. If a stipulation is no longer needed to protect a certain resource because of changes in resource availability, resource use, or development technology; that stipulation could be waived after appropriate site specific environmental analysis. However, the other stipulations may still restrict some or all activities on the tract of land to protect other resource uses or values.

These stipulations would be applied to all or most hydrocarbon leases throughout the Honeycombs WSA. However, due to the dynamics of raptor and sage grouse nesting the extent of the seasonal restrictions could change.

There are no coal leases in the WSA. Coal is known to exist but the probability is low that exploration or extraction would occur within the WSA. The area would be open to mining subject to existing mining laws. Exploration and development of locatable minerals (titanium) would be governed by existing laws as delineated in 43 CFR 3809 regulations. However, given current conditions no activity is anticipated in the foreseeable future. No mining claims exist in the WSA.

Recreation Management. Dispersed recreation activities such as hunting would continue as the primary recreation use in the area. Visitor use levels would stay low, with probably less than 500 visits occurring per year. The WSA would be designated as "Limited" with motorized vehicle use restricted to existing roads and trails. New roads would be authorized under the right-of-way process for activities such as mineral exploration.

Grazing Management. Two grazing allotments (0107 and 0164) are associated with the Honeycombs WSA, both have been initially classified as "I" (improvement) category allotments (see Glossary). Authorization of livestock grazing would remain at the current 1,503 AUM level, until AMPs are revised and/or actions are taken to improve range condition. No range improvement projects are proposed at this time in the WSA. An existing AMP on the Honeycombs



Sage Grouse Strutting Habitat



Sage Grouse Nesting Habitat



Wilderness Study Area Boundary

NOTE: Additional restrictions apply within this area. See Minerals Management narrative.



Map 3
OIL AND GAS LEASE RESTRICTIONS
WILDLIFE
No Wilderness Alternative
HONEYCOMBS WSA – (WY-010-221)

ALTERNATIVES - HONEYCOMBS

Allotment 0107 will be evaluated for possible revision. And an AMP will be prepared for the Cottonwood North Allotment 0164. Prescribed actions may include changes in season of use, changes in kind and class of livestock, changes in the total amount of grazing use authorized, and implementing or revising grazing management systems. However, due to higher priorities in other areas specific actions to improve the WSAs range condition have not been determined and most likely none will occur for several years.

Existing range improvements will continue to be maintained by individual grazing permittees under provisions of a range improvement permit or cooperative agreement. Fences, wells, and reservoirs would be maintained as they have in the past. This could involve the approval for use of vehicles and heavy equipment and possibly the development of new access routes.

The use of motorized vehicles for range management purposes would be limited to existing roads and trails due to the off road vehicle designation but vehicle use could be approved for range improvement project maintenance purposes when appropriate.

Wildlife Habitat Management. Resource uses would be managed in such a way as to protect wildlife habitat so that existing year round and seasonal game animal populations of approximately 100 mule deer, 200-300 pronghorn antelope and 100 sage grouse would be maintained. No wildlife improvement projects are currently planned for the WSAs. Habitat conditions will continue to be monitored. Observations to determine the presence of threatened and endangered species would continue. Field checks will be made to ensure that big game habitat is being maintained.

Honeycombs WSA—All Wilderness Alternative

With this alternative all 21,000 acres would be recommended for wilderness designation and the area would be managed as described below:

Minerals Management. When an area is designated as wilderness, all minerals are withdrawn from all forms of appropriation under all laws pertaining to mineral location and leasing. Therefore, under wilderness designation, no new mining claims could be filed and no new mineral leases would be issued. No mining claims currently exist.

Development of 20 existing post-FLPMA oil and gas leases, that cover 6,018 acres within the WSA would be subject to either a wilderness protection stipulation (Appendix A) or wilderness protection measures identified through project specific environmental analyses. The practical effect of which would be to restrict the area so that no surface disturbance would be allowed. There are currently five pre-FLPMA leases covering 2,244 acres within the area that will expire in 1986 unless these leases are extended as a result of development. Development of pre-FLPMA leases is not considered likely. Seismic exploration has indicated an interest in the WSA but no Applications for Permits to Drill (APDs) have been received. Pre-FLPMA leases do not contain wilderness nonimpairment stipulations, and development could effect manageability.

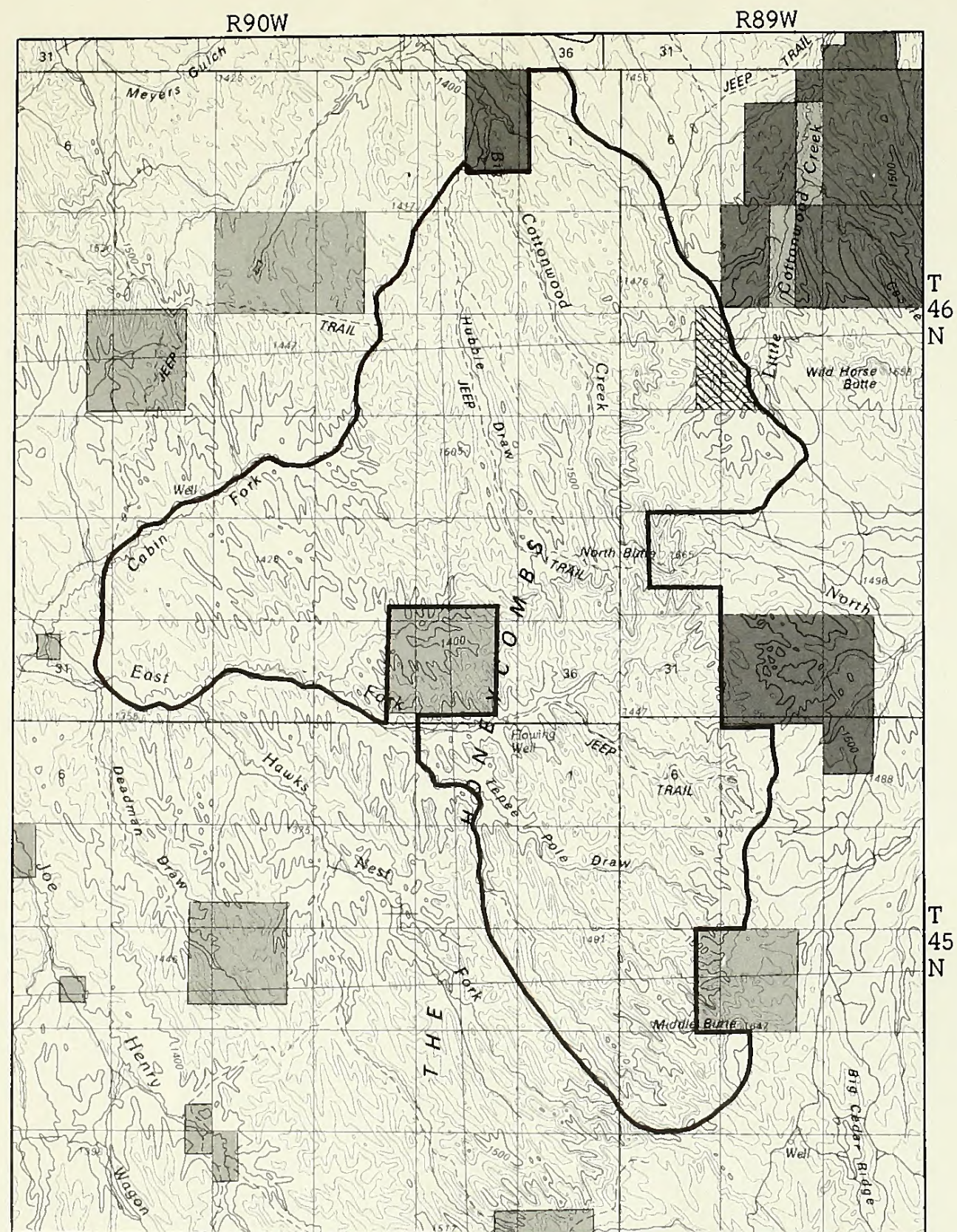
Recreation Management. The Honeycombs area would be managed to provide for primitive recreation opportunities such as walk-in hunting, camping, hiking, and other nonmotorized recreational pursuits. Use levels are not expected to change significantly from present. No developed recreation facilities would be constructed within the WSA, unless the areas natural environment is threatened. Facilities such as signs and visitor use registers would be installed upon designation.

Grazing Management. Livestock grazing would be managed the same as under the No Wilderness Alternative. Motorized vehicle use would be practically precluded and no new access would be developed. Maintenance of range improvements would be restricted to nonmotorized equipment.

Wildlife Habitat Management. Wildlife habitat would be managed the same as with the No Wilderness Alternative.

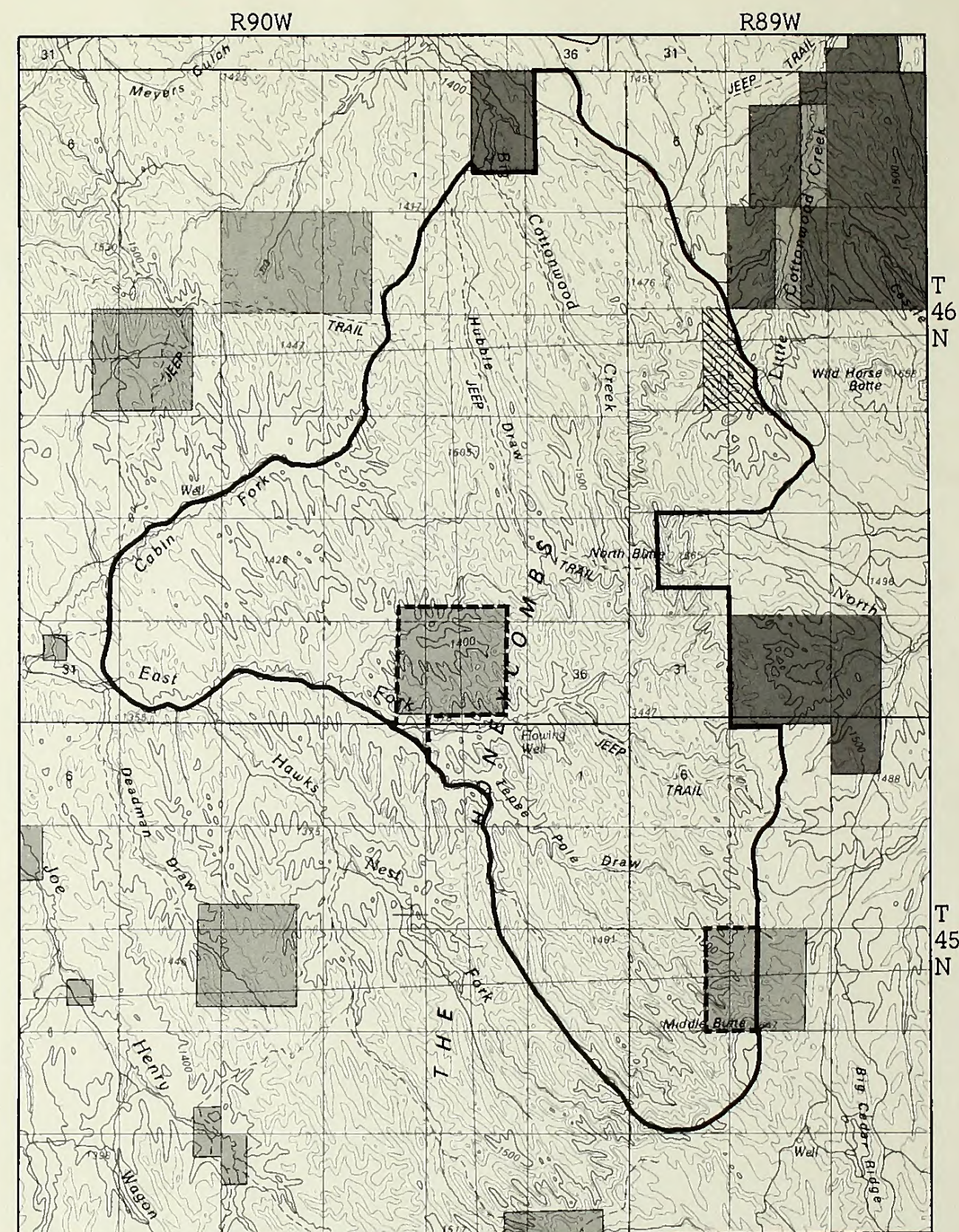
Honeycombs WSA—Wilderness Enhancement Alternative

With this alternative the existing WSA and an additional 1,036 acres of state and split estate land for a total of 22,036 acres would be acquired and recommended suitable for wilderness designation. Resource management objectives would be the same as those for the All Wilderness Alternative. No projects are known within the add-on lands that would hinder wilderness management objectives.



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Split Estate Land
- Wilderness Study Area and Alternative Designation Boundary

Map 4
HONEYCOMBS WSA (WY-010-221)
All Wilderness Alternative And Existing WSA



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Split Estate Land
- Wilderness Study Area Boundary
- Alternative Designation Boundary

Map 4
HONEYCOMBS WSA (WY-010-221)
Wilderness Enhancement Alternative

ALTERNATIVES - HONEYCOMBS

TABLE 2
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
HONEYCOMBS

Issue	Proposed Action No Wilderness Alternative	All Wilderness Alternative	Wilderness Enhancement Alternative
Wilderness Values	A loss of wilderness values would occur as a result of oil and gas development on 56 acres. Livestock management and motorized recreation use would impact wilderness values.	Wilderness values on 21,000 acres would receive long-term protection through wilderness designation. Five pre-FLPMA oil and gas leases have potential to degrade wilderness values on 2,244 acres of land.	Wilderness values would be preserved on 22,036 acres. The area would receive long-term protection through wilderness designation. Five pre-FLPMA oil and gas leases have potential to degrade wilderness values on 2,244 acres of land.
Recreation Use and Quality	An increase in access as a result of oil and gas exploration would enhance motorized recreation activity. There would be a loss of non-motorized recreation opportunities. No significant change in visitor use levels expected.	Motorized vehicle use would be prohibited. Primitive recreation opportunities would be preserved. A slight increase in recreation use levels is expected.	Motorized vehicle use would be prohibited on an additional 1,036 acres. Primitive recreation opportunities would be enhanced.
Wildlife	Habitat would be lost as mineral exploration and development increases. As these impacts and access progress, a displacement of about 2 mule deer and up to 6 antelope per year, could occur. No impacts to threatened and endangered species are expected.	Population numbers for both deer and antelope would remain stable while habitat would be protected. No impacts to threatened and endangered species are expected.	Big game populations would remain stable, habitat would be protected on an additional 1,036 acres. No impacts to threatened and endangered species are expected.
Mineral Exploration and Production	Oil, gas and coal resources would be available for leasing, exploration and development. Oil and gas potential is high. Development of coal deposits is unlikely.	Oil and gas exploration would be limited to 5 pre-FLPMA leases that have valid existing rights. Development of 20 post-FLPMA leases would be subject to wilderness protection measures. When pre-FLPMA leases expire future development opportunities would be precluded.	Mineral resources on 22,036 acres would not be available for commodity development except for valid existing rights.
Livestock Grazing and Management	Grazing management and livestock production would continue under existing range management procedures. Use would continue at 1,503 AUMs. Operating costs would remain uniform over all portions of grazing permits.	Livestock grazing would continue at current 1,503 AUMs, subject to good range management practices. Operation costs within the designated area could be up to 25% higher due to wilderness protection restrictions.	Established grazing use would continue as under the All Wilderness Alternative. Increasing the size of the designated area would expand rangeland subject to wilderness protection criteria by an additional 1,036 acres.
Water Quality	Mineral development could degrade water quality in receiving waters but may also increase wetland vegetation.	There would be little or no change in existing water quality and quantity.	Same as All Wilderness Alternative.

ALTERNATIVES - CEDAR MOUNTAIN

Cedar Mountain WSA—No Wilderness Alternative (Proposed Action)

With this alternative none of the 21,570 acres would be recommended for wilderness designation and the area would be managed as described below:

Minerals Management. All 21,570 acres in the present Cedar Mountain WSA would be available for oil, gas and coal leasing. An estimate that about nine exploratory wells would be drilled within the WSA in the next 50 years was based on drilling history and the high potential for oil and gas occurrence. Each of these exploratory wells would have approximately a 14 percent chance of developing into a producing well. A producing well could result in development of a field of unknown extent. It should be noted that this projection is based on a statistical average and actual mineral development could differ.

Approximately 2.5 acres per well site of surface disturbance is likely during drilling and production operations. Access road construction constitutes approximately 2.25 acres of disturbance for each mile of road constructed. If 2 miles of new road is constructed for each well site, this would result in a total surface disturbance of 7 acres per well site, or 63 acres for the nine wells. This most likely to occur scenario will be referenced in the Environmental Consequences. Potential impacts on scenic quality, watershed and wildlife values from oil and gas exploration and development would be minimized by application of the following lease stipulations:

1. Approximately 5,289 acres or 24 percent of the WSA would be subject to no surface disturbance in order to protect fragile slopes in excess of 25 percent. These steep slopes are scattered and not mapped.
2. Approximately 50 percent of the WSA would be subject to no surface disturbance to protect an important scenic area.
3. Approximately 10 percent of the WSA currently would be subject to no surface disturbance during the period from February 1 to July 31 in order to protect sage grouse nesting habitat.

The complete wording of these stipulations is described in the Wyoming BLM Standard Stipulations for Surface Disturbing Activities (Appendix E).

Several stipulations may apply similar restrictions to the same tract of land to protect different resource uses or values. If a stipulation is no longer

needed to protect a certain resource because of changes in resource availability, resource use, or development technology; that stipulation could be waived after appropriate site specific environmental analysis. However, the other stipulations may still restrict some or all activities on the tract of land to protect other resource uses or values.

These stipulations would be applied to all or most hydrocarbon leases within the Cedar Mountain WSA. However, due to the dynamics of raptor and sage grouse nesting, the extent of the seasonal restrictions could change.

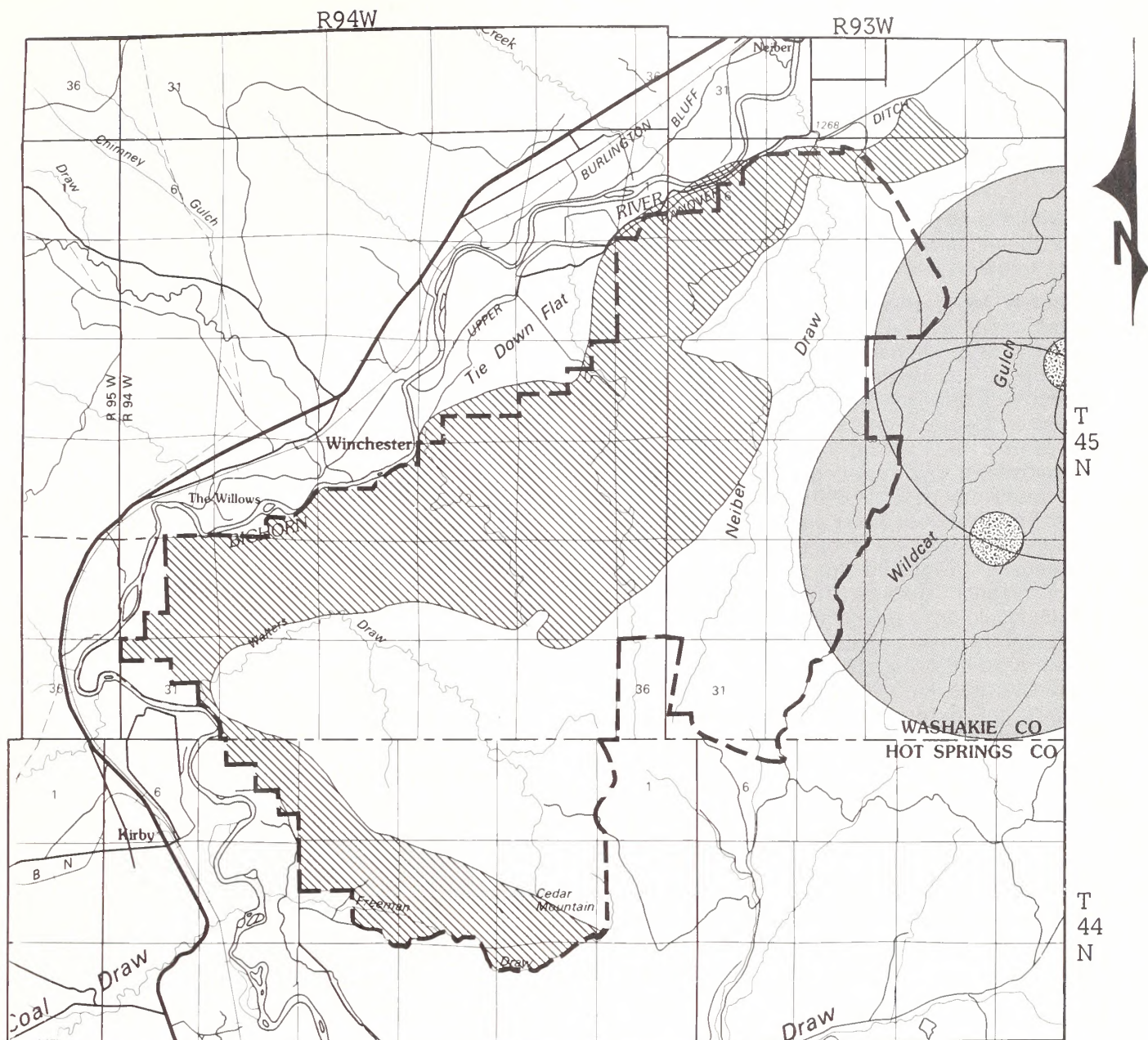
The area would be open to mining subject to existing mining laws. However, there is a low probability of mineral production due to the low potential for occurrence. There is a low probability of development of existing coal deposits, due to its quality, and cost of production.





Recreation Management. An ORV designation of "Limited" would be applied to the area. Off-road vehicle travel would be limited to existing roads and trails. The WSA would be managed to provide for low levels (less than 500 visitor days per year) of dispersed semi-primitive recreation use such as hunting. No developed recreation facilities would be constructed within the area.

Grazing Management. There are five grazing allotments associated with the Cedar Mountain WSA. Three (0159, 0517, and 0625) have been initially classified as "C" (custodial) category, and two (0048 and 0502) are classified as "I" (improvement) category. Grazing use within these allotments will be evaluated and adjustments in grazing use (number of animals/or seasons of use) may be made.

Existing range improvements will be maintained by individual grazing permittees under provisions of a range improvement permit or cooperative agreement. Fences, wells and reservoirs would be maintained as they have in the past. This could involve the approval for use of vehicles and heavy equipment, and possibly the development of new access routes. No new range improvement projects are currently planned for the WSA.

Wildlife Habitat Management. Resource uses would be managed in such a way as to protect wildlife habitat so that existing year-round game animal populations of approximately 200 to 300 mule deer and 300 gray and chukar partridge would be maintained. No wildlife improvement projects are currently planned although there has been some speculation about the feasibility of installing guzzlers for wildlife watering purposes. Monitoring of habitat conditions, including bald eagle use areas, will continue.



-  Sage Grouse Strutting Habitat
-  Sage Grouse Nesting Habitat
-  Scenic Area (Class II)
-  Wilderness Study Area Boundary

NOTE: Additional restrictions apply within this area. See Minerals Management narrative

Map 5
OIL AND GAS LEASE RESTRICTIONS
WILDLIFE, SCENIC AREA
No Wilderness Alternative
CEDAR MOUNTAIN WSA (WY-010-222)

ALTERNATIVES - CEDAR MOUNTAIN

Cedar Mountain WSA—All Wilderness Alternative

With this alternative all 21,570 acres would be recommended for wilderness designation and the area would be managed as described below:

Minerals Management. When an area is designated wilderness, all minerals are withdrawn from all forms of appropriation under all laws pertaining to mineral location and leasing. Therefore, under wilderness designation, no new mining claims could be filed and no new mineral leases would be issued. No mining claims currently exist. Development of 23 existing post-FLPMA oil and gas leases that cover 18,690 acres within the WSA would be subject to either a wilderness protection stipulation (Appendix A) or wilderness protection measures identified in a project specific environmental analysis. The practical effect of which would be to restrict the area where surface disturbance would be allowed. There are currently three pre-FLPMA leases covering 1,520 acres within the area that will expire in 1986 unless these leases are extended through development. Development of these leases is not expected, although there has been some recent interest in seismic exploration. Pre-FLPMA leases are not subject to wilderness nonimpairment stipulations and development could affect the area's manageability.

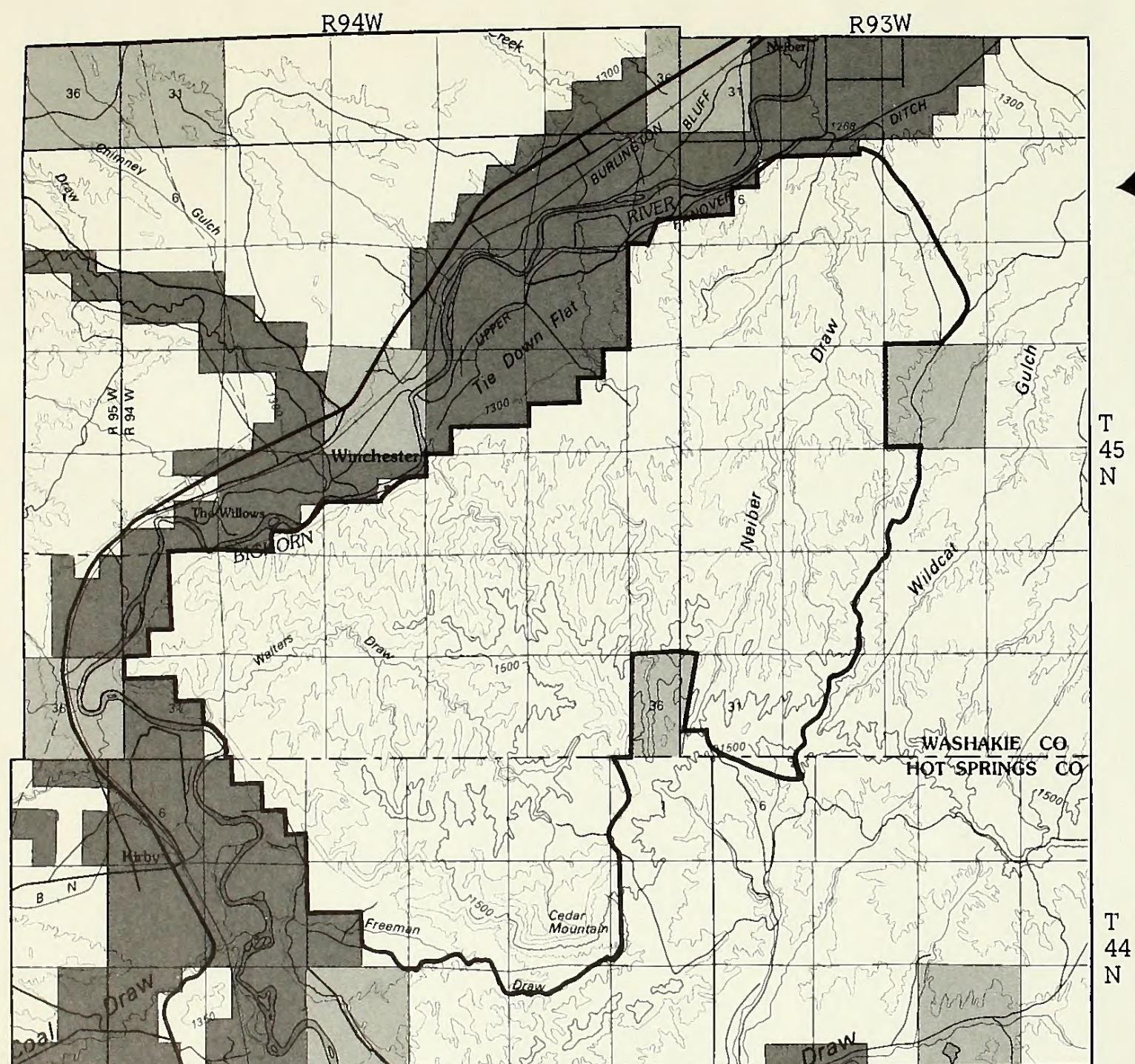
Recreation Management. The Cedar Mountain area would be managed to provide for primitive recreation opportunities such as walk-in hunting, camping, hiking and other nonmotorized recreational pursuits. Visitor use levels are not expected to change significantly. Signs and visitor use registers may be installed to monitor visitor use.

Grazing Management. Authorization of livestock grazing for the WSA would remain at the current 1,751 AUM level, until AMPs are revised and/or actions are taken to improve range condition. Future actions may include changes in season of use, changes in kind and class of livestock, changes in the total amount of grazing use authorized, and implementing or revising grazing management systems. No changes are proposed at this time.

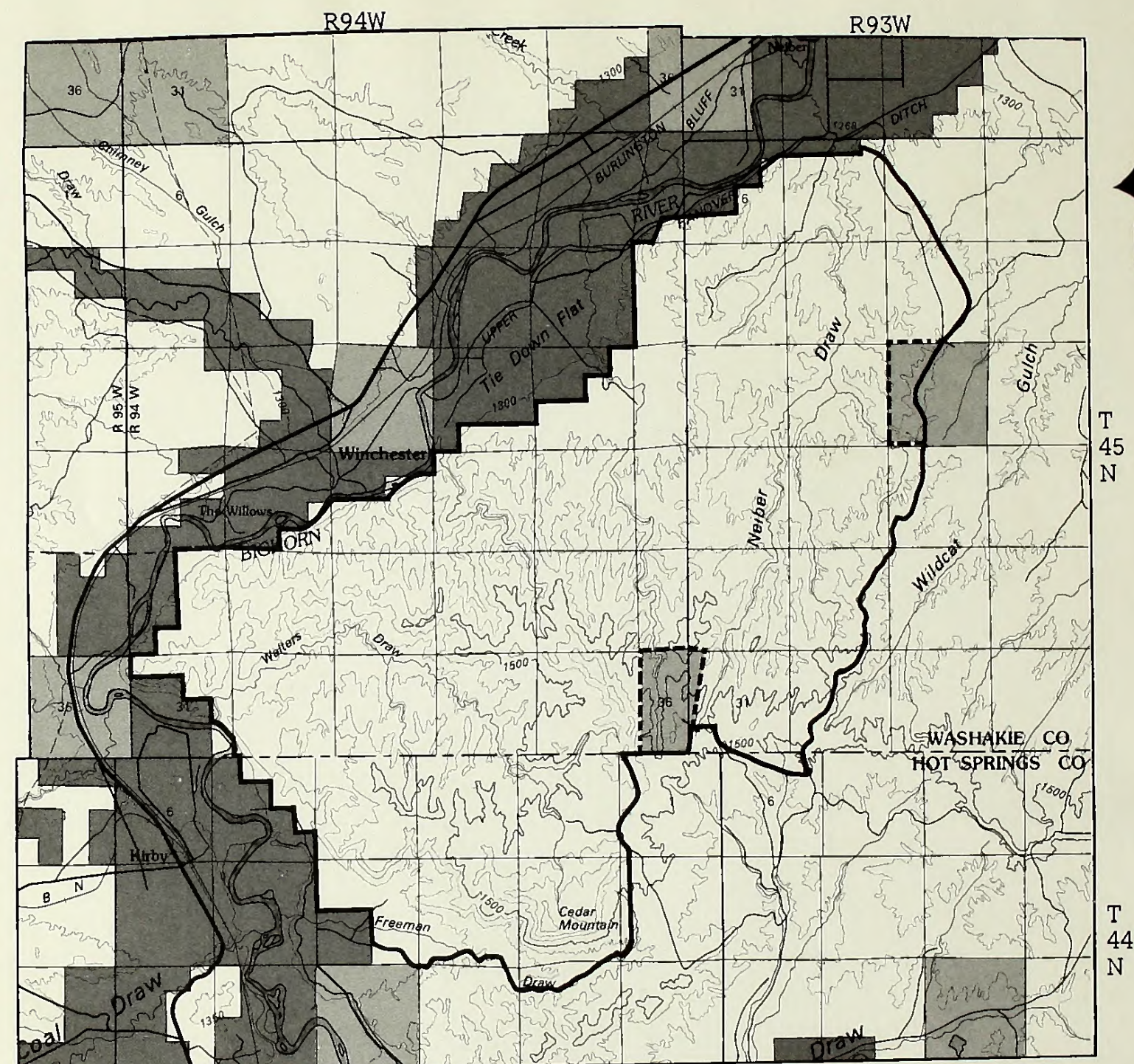
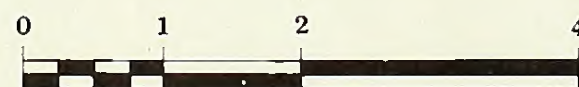
Wildlife Habitat Management. Objectives for the management of wildlife habitat under the All Wilderness Alternative would be the same as those for the No Wilderness Alternative. Habitat improvement projects such as new wildlife watering facilities would have to conform to the Bureau's "Wilderness Management Policy." The Wyoming Game and Fish Department has expressed interest in developing water supplies for wildlife within the area. However, no facilities are proposed at this time.

Cedar Mountain WSA—Wilderness Enhancement Alternative

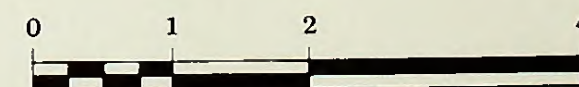
With this alternative, the existing WSA and an additional 601 acres of state land, for a total 22,171 acres, would be acquired and recommended suitable for wilderness designation. Management objectives for resources would be the same as those for the All Wilderness Alternative. No projects are known within the add-on lands that would hinder wilderness management objectives.



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary and Alternative Designation Boundary



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Alternative Designation Boundary



ALTERNATIVES - CEDAR MOUNTAIN

TABLE 3
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
CEDAR MOUNTAIN

Issue	Proposed Action No Wilderness Alternative	All Wilderness Alternative	Wilderness Enhancement Alternative
Wilderness Values	Oil and gas development, will degrade wilderness values. As access is developed use of motorized vehicles will increase. This will directly affect naturalness and opportunities for solitude within the area.	Wilderness values on 21,570 acres would receive long-term protection through wilderness designation. Three pre-FLPMA oil and gas leases have potential to degrade wilderness values on 1,520 acres within the area.	Wilderness values would be preserved on 22,171 acres. The area would receive long-term protection through wilderness designation. Three pre-FLPMA oil and gas leases have potential to degrade wilderness values on 1,520 acres within the area.
Recreation Use and Quality	The types of recreation use within the area would remain unchanged. Vehicle use would be limited to existing roads and trails. Nonmotorized recreation opportunities would decrease.	Motorized vehicle use would be prohibited. Emphasis would be to enhance primitive nonmotorized recreation.	Motorized vehicle use would be prohibited on an additional 601 acres. Primitive recreation opportunities would be enhanced.
Wildlife	Habitat loss would cause a displacement of approximately 5 mule deer per year as mineral exploration and development increases. Impacts to bald eagle hunting territory are expected.	Population numbers for deer would remain stable while big game habitat would be protected. Habitat manipulation would be restricted but not entirely precluded. No impacts to threatened and endangered species are expected.	Big game populations would remain stable, habitat would be protected on 601 additional acres. No impacts to threatened and endangered species are expected.
Livestock Grazing and Management	Grazing use would continue to be authorized at 1,751 AUMs. Existing use of vehicle trails for livestock management purposes would continue. Construction of new range improvement projects and maintenance of existing facilities would be processed through standard range management procedures. Operating costs would remain uniform over all portions of grazing permits.	Livestock grazing would continue at existing numbers, subject to good range management practices. Operation costs within the designated area would be up to 25% higher due to wilderness protection restrictions on the use of motor vehicles.	Established grazing use would continue as under the All Wilderness Alternative. Increasing the size of the designated area by 601 acres would expand rangeland subject to wilderness protection criteria.
Mineral Exploration and Production	Oil, gas and coal resources would be available for leasing, exploration and development. Oil and gas potential is high. Development of coal deposits is unlikely.	Oil and gas exploration would be limited to three pre-FLPMA leases that possess valid existing rights. Development of 23 post-FLPMA leases would be subject to wilderness protection measures. Location of mining claims would not be allowed.	Mineral exploration and development would be restricted on 22,177 acres. Valid existing rights would be honored.
Water Quality	Produced water discharges from oil and gas activity could degrade water quality but may also increase wetland vegetation.	There would be little or no change in water quality or quantity.	No change from existing situation.

ALTERNATIVES - MEDICINE LODGE

Medicine Lodge WSA—No Wilderness Alternative (Proposed Action)

With this alternative, none of the 7,740 acres would be recommended for wilderness designation and the area would be managed as described below.

Minerals Management. About 6,140 acres in the present Medicine Lodge WSA would be available for oil and gas leasing under this alternative. No leasing would be allowed on 1,600 acres within the WSA for protection of the Spanish Point Karst ACEC (see Map 8). Potential tar sand deposits occur within a portion of the WSA. There is considered to be low potential for the occurrence of other hydrocarbons such as oil and gas. Due to unfavorable geologic conditions future oil and gas development in this area is unlikely to occur. If leases were explored, impacts on scenic quality, watershed and wildlife values from mineral development would be minimized because:

1. Approximately 4,600 acres or 60 percent of the WSA would be subject to no surface disturbance due to slopes over 25 percent. These areas are scattered throughout the WSA.
2. The entire WSA would be subject to a no surface disturbance stipulation to protect an important scenic area.
3. Approximately 70 percent of the WSA would be subject to a no surface occupancy designation (Map 7) to protect a special resource (Medicine Lodge Canyon).
4. All of the WSA would be subject to no surface disturbance from November 15 to April 30 to protect big game ungulate winter habitat.
5. Approximately 40 percent of the WSA would be subject to a no surface disturbance stipulation during the period from February 1 to July 31 in order to protect known sage grouse nesting habitat.

The complete wording of these stipulations is described in the Wyoming BLM Standard Stipulations for Surface Disturbing Activities (Appendix E).

Several stipulations may apply similar restrictions to the same tract of land to protect different resource uses or values. If a stipulation is no longer needed to protect a certain resource because of changes in resource availability, resource use, or development technology; that stipulation could be waived after appropriate site specific environmental analysis. However, the

other stipulations may still restrict some or all activities on the tract of land to protect other resource uses or values.

Exploration and development of locatable minerals would be governed by existing laws as delineated in 43 CFR 3809 regulations. No mining claims exist and production of locatable minerals is not anticipated under current conditions.

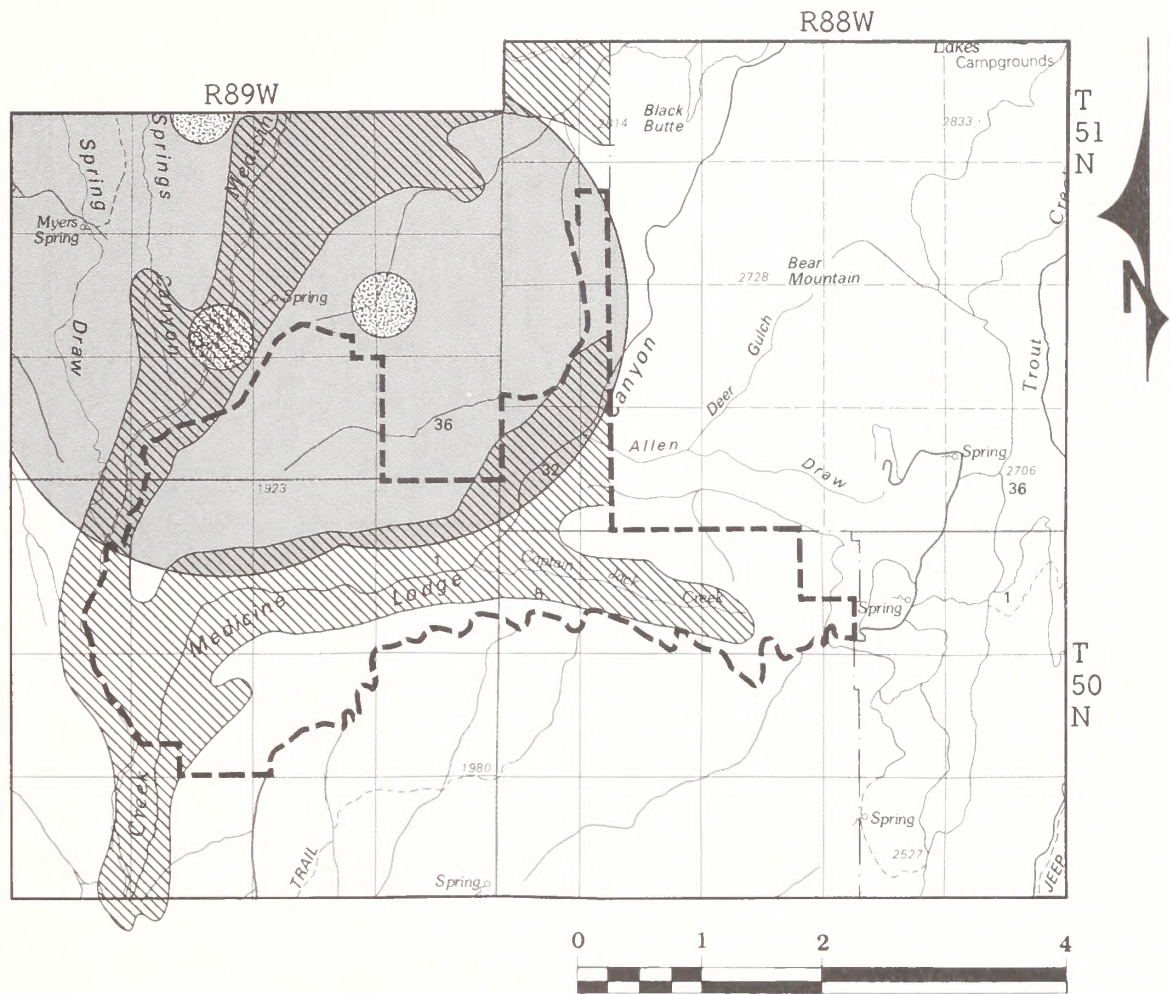
Recreation Management. Recreation opportunities in the Medicine Lodge area would be managed under a West Slope Special Recreation Area Management Plan, proposed for development in the near future. Recreation use direction, conflict reduction and resource protection will be primary goals of that plan. No specific actions are proposed at this time.





Moderate levels (500-1,000 visitor days/year) of dispersed recreation use (hunting, fishing, camping) would continue. Commercial outfitter and guide use will be administered under permit. An ORV designation would close vehicle travel on 1,600 acres and limit vehicle travel to designated roads and trails and to seasons of use on specified roads to minimize conflicts with objectives of the Medicine Lodge Habitat Management Unit and proposed Spanish Point Karst ACEC described in the following watershed and wildlife sections for this alternative description.

Scenic quality would be protected thus preserving dominant views found in the characteristic landscape such as views of the Bighorn Mountains, the canyons and overstory vegetation.

Watershed Management. An Area of Critical Environmental Concern (ACEC) would be designated on approximately 1,600 acres within the existing Medicine Lodge WSA to protect important water recharge areas for the Madison and Tensleep formation aquifers. The ACEC goals and actions include:

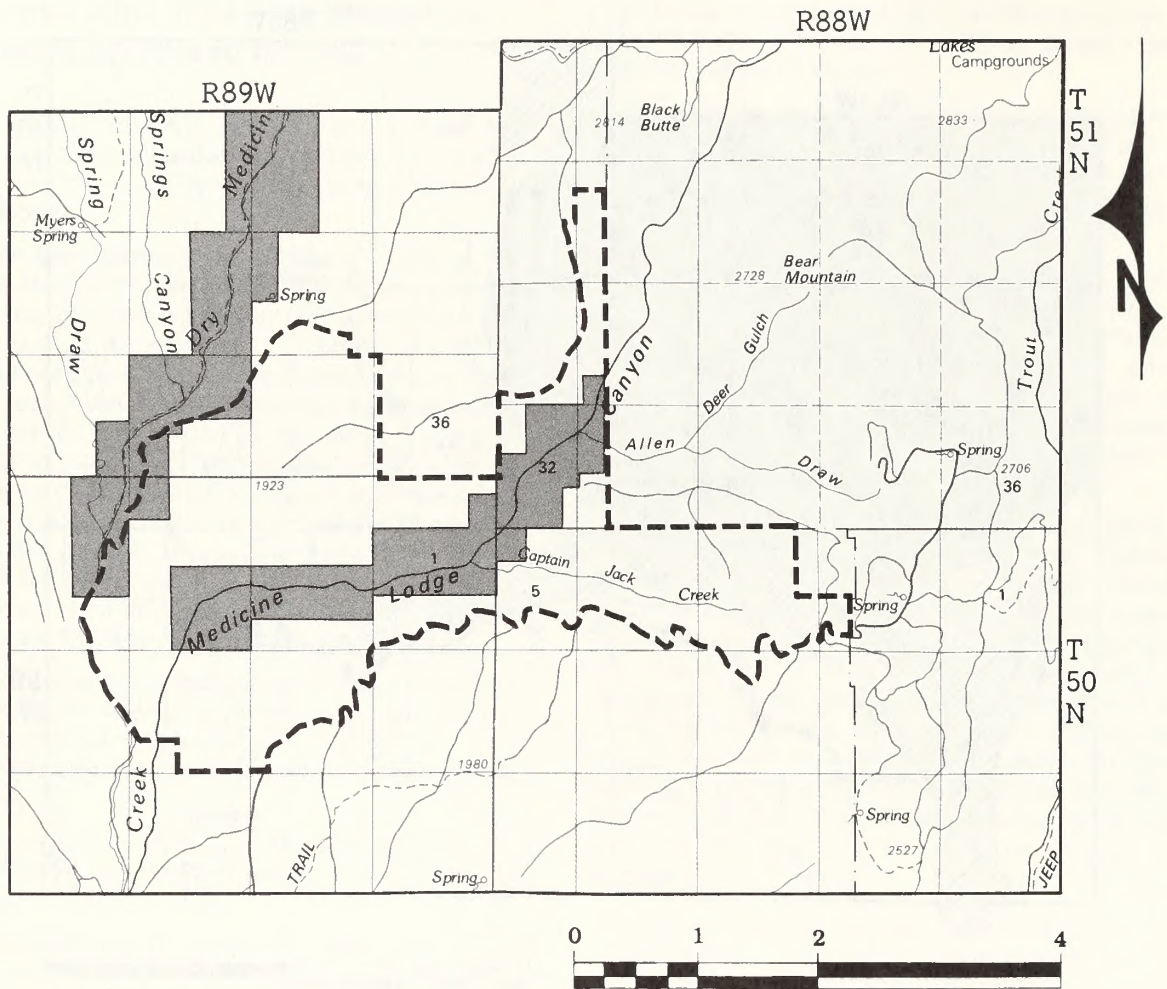
1. Karst and cave areas would be withdrawn from mineral leasing and location.
2. Special logging restriction on season, slope, and equipment use would be applied.
3. The use of insecticides and herbicides, would be prohibited.
4. A cooperative watershed management agreement with the United States Forest Service would be pursued.
5. All roads would be closed and reclaimed where accelerated erosion is occurring.



-  Sage Grouse Strutting Habitat
-  Sage Grouse Nesting Habitat
-  Special Resource (Medicine Lodge Creek)
-  Wilderness Study Area Boundary

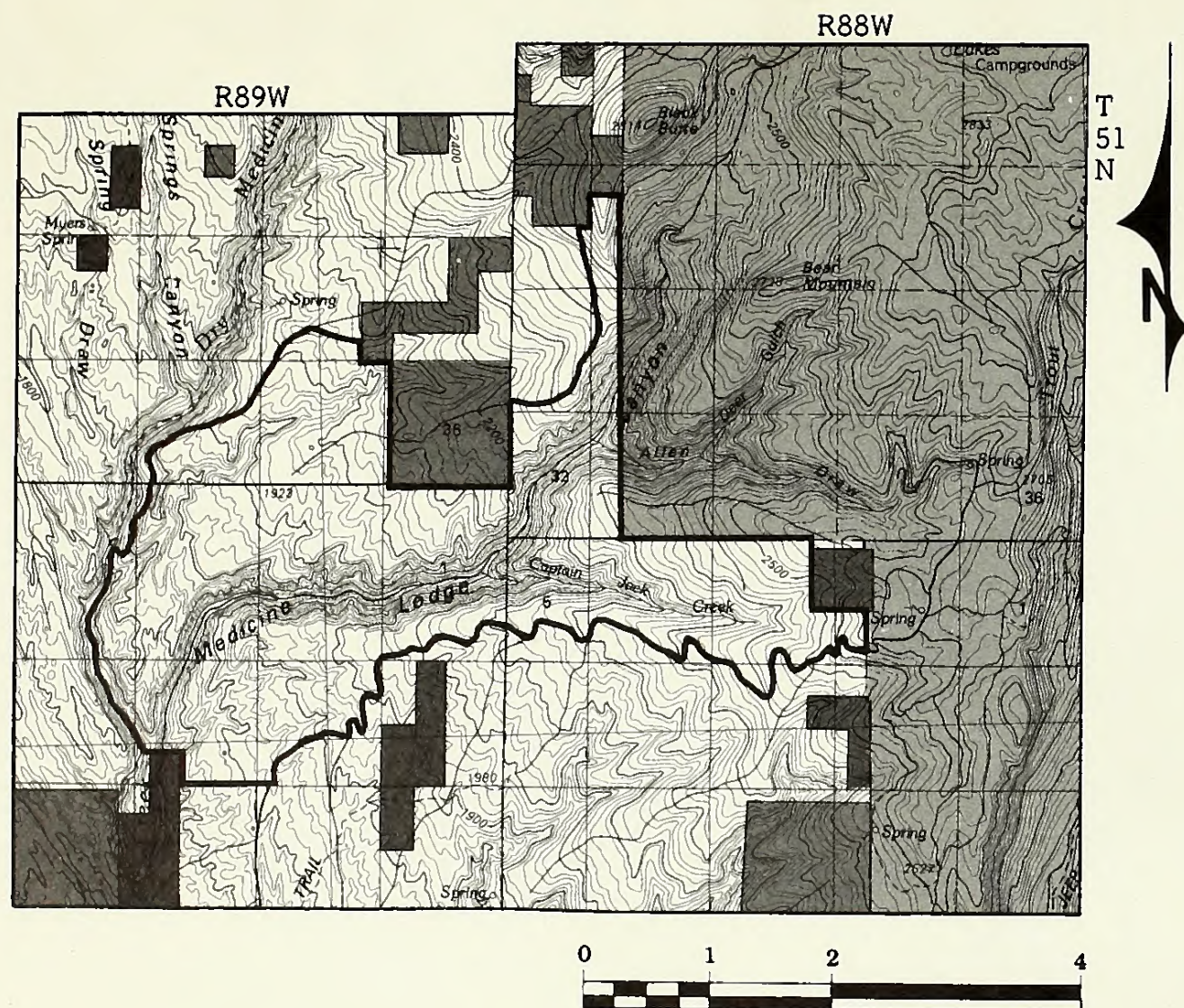
NOTE: Additional restrictions apply within this area. See Minerals Management narrative.

Map 7
OIL AND GAS LEASE RESTRICTIONS
WILDLIFE, SPECIAL MANAGEMENT AREA
No Wilderness Alternative
MEDICINE LODGE WSA (WY-010-240)



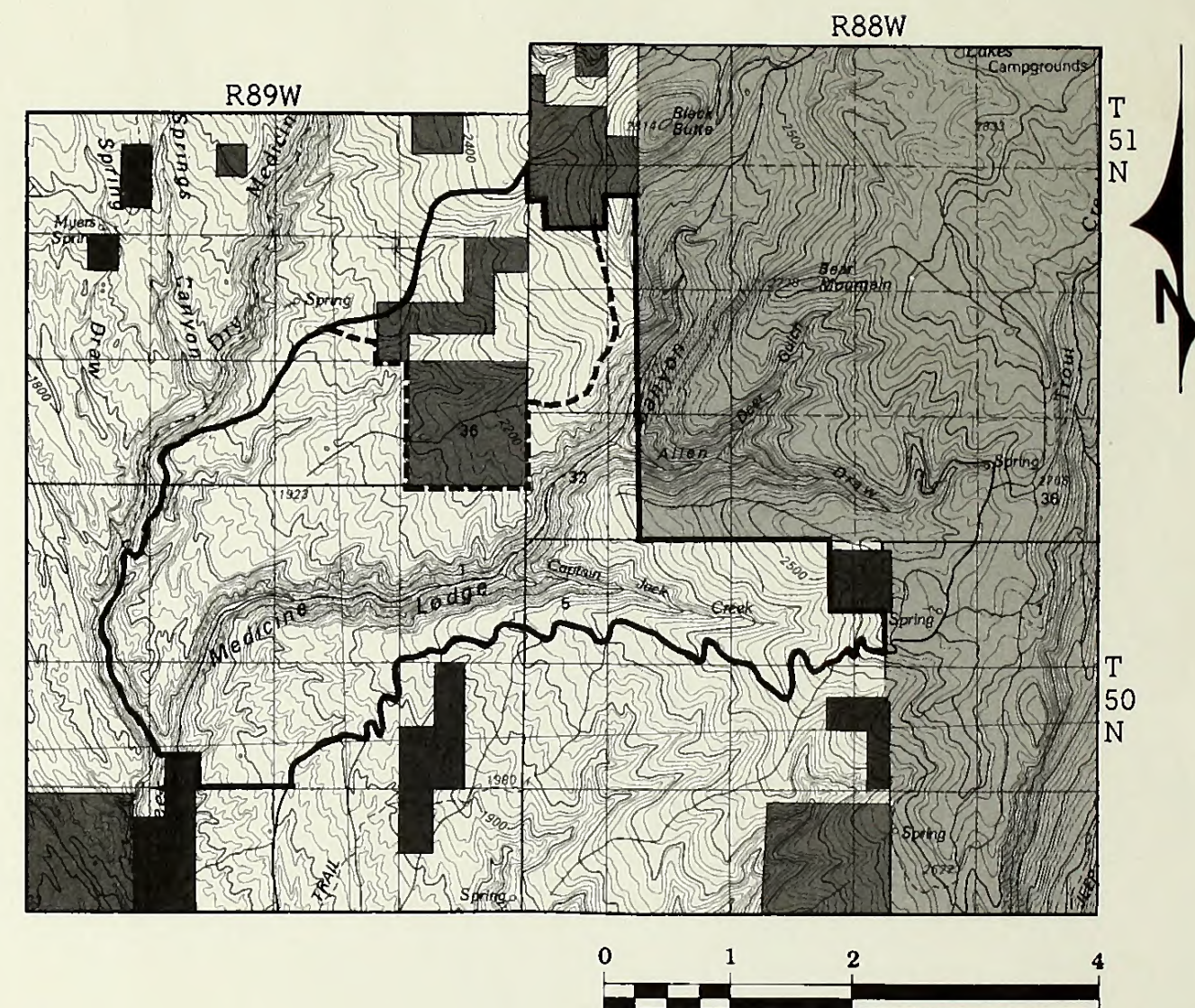
- Proposed ACEC
- Wilderness Study Area Boundary

Map 8
Proposed
SPANISH POINT KARST ACEC
 Within
MEDICINE LODGE WSA (WY-010-240)



- Federal Surface Ownership (BLM)
- Federal Surface Ownership (USFS)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area and Alternative Designation Boundary

Map 9
MEDICINE LODGE WSA (WY-010-240)
 All Wilderness Alternative And Existing WSA



- Federal Surface Ownership (BLM)
- Federal Surface Ownership (USFS)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Alternative Designation Boundary

Map 9
MEDICINE LODGE WSA (WY-010-240)
 Wilderness Enhancement Alternative

ALTERNATIVES - MEDICINE LODGE

The remaining 6,140 acres of public land within the WSA not managed as an ACEC would be managed in accordance with the following watershed objectives:

1. No discharge would be allowed in Dry Medicine or Medicine Lodge creeks from the USFS boundary downstream to the confluence of the two creeks.
2. Streams and reservoirs in the West Slope HMP area with sport fish management potential would be recommended for nondegradation. Produced or waste water discharges would not be permitted unless it could be demonstrated that water discharges are of equal or better quality than the receiving stream.
3. Areas in full wildfire suppression zones above sinking stream segments and caves would have special restrictions applied to suppression activities.
4. Motor vehicles and excavation equipment would not be allowed to operate within 200 yards of Dry Medicine Lodge, Medicine Lodge or Trapper creeks and other tributaries exhibiting karst characteristics.
5. Air dropped fire retardants would not be allowed within 200 yards of Dry Medicine Lodge and Medicine Lodge creeks.

Grazing Management. Three grazing allotments associated with the Medicine Lodge WSA have been initially classified as "I" (improvement) category allotments. Grazing use within these allotments will be evaluated and adjustments in grazing use (number of animals/or seasons of use) may be made. It could be several years until adjustments occur, as none are planned at this time and these allotments are low in priority among the 200 "I" category allotments.

Existing range improvements will be maintained by individual grazing permittees under provisions of a range improvement permit or cooperative agreement. This could involve the use of vehicles and heavy equipment, and possibly the development of new access routes. Fence construction, water developments and sagebrush control projects may be implemented within the Forks and Mathews Ridge allotments. These projects would not have to conform to wilderness protection criteria if the WSA is not designated by Congress.

Wildlife Habitat Management. This area would continue to be cooperatively managed by the Wyoming Game and Fish Department (WG&FD) and the BLM under a Memorandum of Understanding as crucial winter range for elk. Goals identified by the Medicine Lodge Habitat

Management Unit Agreement and objectives within the West Slope Habitat Management Plan will continue to provide direction for the management of wildlife habitat within the area. Winter habitat will be provided for approximately 1,100 elk and 300 mule deer. Wildlife populations and habitat conditions will be monitored on a regular basis by WG&FD and BLM.

Management actions for the area to achieve West Slope Habitat Management Plan objectives include the following:

1. To manage habitat to meet the forage, water, and cover requirements of priority wildlife species in accordance with the Wyoming Game and Fish Department strategic plan goals and national recovery plan goals for the threatened and endangered species. Planned actions are water development, forage use adjustments, nonsurface disturbing vegetation manipulations (i.e., prescribed burns), and land tenure adjustment to complement crucial habitat management.
2. To manage man-caused disruptions and restriction of big game migrations, movements, and utilization of habitat. Planned actions include fence modifications and road and other human use management.
3. To manage public land (BLM) game fish habitat in Class I streambank condition. Planned actions include streambank stabilization, riparian zone fencing, forage use adjustments, seeding and planting, instream structures, land tenure adjustments, and beaver management.
4. To improve and maintain all other public land (BLM) wetlands (i.e., springs, seeps) to Class III and higher condition. Planned actions include fencing, seeding and planting buffer zones.

Due to limited funding levels, there are no specific proposals currently scheduled for implementation within the WSA.

Forest Management. All 432 acres of commercial forest land and 170 acres of woodlands would be available for the production of wood fiber commodities. As the use of cable logging systems becomes more widespread in this region, commercial timber not currently available due to steep slopes will become accessible for harvesting. A West Slope of the Bighorns Forest Management Plan will guide management of forest commodities in the WSA. No timber sales are planned within the area for the next five years.

ALTERNATIVES - MEDICINE LODGE

Medicine Lodge WSA—All Wilderness Alternative.

With this alternative, all 7,740 acres would be recommended for wilderness designation and the area would be managed as described below:

Minerals Management. When an area is designated wilderness, all minerals are withdrawn from all forms of appropriation under all laws pertaining to mineral location and leasing. Therefore, under wilderness designation, no new mining claims could be filed and no new mineral leases would be issued. Development of three existing post-FLPMA oil and gas leases that cover 3,790 acres within the WSA would be subject to either a wilderness protection stipulation (Appendix A) or wilderness protection measures identified through project specific environmental analysis.

Recreation Management. The designated area would be managed to provide for primitive recreation opportunities such as walk-in hunting, camping, hiking, fishing and other nonmotorized recreational pursuits. The entire area would be closed to recreational ORV use. Significant changes in visitor use levels is not expected. Commercial outfitters would continue to be regulated under a permit system. Signs and visitor registers would be installed in order to monitor recreation use.

Grazing Management. Authorization of livestock grazing for the WSA would remain at the current 1,108 AUM level, until AMPs are revised and/or actions are taken to improve range condition. These actions may include changes in season of

use, changes in kind and class of livestock, changes in the total amount of grazing use authorized, and implementing or revising grazing management systems. No new range improvement projects are currently planned for the area.

Wildlife Habitat Management. Wildlife habitat will be managed the same as under the No Wilderness Alternative.

Forest Management. Management of 432 acres of commercial forest, mostly in the Captain Jack Creek drainage, and 170 acres of woodlands would be directed by the BLM's "Wilderness Management Policy." There would be an emphasis on protection of primitive character and allowing natural ecological succession to operate without interference.

Watershed Management. An ACEC proposal would guide watershed management actions on 1,600 acres. Goals and actions for this ACEC are listed under the No Wilderness Alternative. Wilderness designation would complement watershed management efforts on the remaining area.

Medicine Lodge WSA—Wilderness Enhancement Alternative.

With this alternative the existing WSA and an additional 2,056 acres would be recommended suitable for wilderness designation. Resource management objectives would be the same as those for the All Wilderness Alternative. No projects are known within the add-on lands that would hinder wilderness management objectives.

TABLE 4
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
MEDICINE LODGE

Issue	Proposed Action No Wilderness Alternative	All Wilderness Alternative	Wilderness Enhancement Alternative
Wilderness Values	Wilderness values in Medicine Lodge Canyon would be maintained. Most lands within the WSA would be available for oil and gas leasing. Potential for oil and gas development is considered low. Timber production on 432 acres would have a long-term impact on wilderness values.	Wilderness values on 7,740 acres would receive long-term protection through wilderness designation.	Wilderness values would be preserved on 9,796 acres after land exchanges with the state are completed. The area would receive long-term protection through wilderness designation.

ALTERNATIVES - MEDICINE LODGE

TABLE 4 (Continued)
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
MEDICINE LODGE

Issue	Proposed Action No Wilderness Alternative	All Wilderness Alternative	Wilderness Enhancement Alternative
Recreation Use and Quality	Opportunities for a quality primitive recreation experience are expected to remain high within Medicine Lodge Canyon. Vehicle use would be closed on 1600 acres and limited to designated roads and trails and by seasons of use on the remaining area. Recreation in the canyon area would be managed as part of the West Slope Canyons, Special Recreation Management Area.	All recreational ORV use would be prohibited. The primitive recreation resource base would be enhanced. Overall, visitor use levels are expected to increase slightly.	Recreational ORV use restrictions would occur on approximately 3 additional miles of vehicle trails. Long-term protection of primitive recreation opportunities would result.
Wildlife	Crucial winter range habitat for elk and mule deer would be temporarily lost through timber harvest. Bald eagle hunting territory could be disturbed.	Designation would provide long-term habitat protection and security for wildlife populations. Timber cover, valuable to wildlife would be retained without the threat of harvesting. No impacts to threatened and endangered species are expected.	Big game habitat and populations would benefit from expanded protection. No impacts to threatened and endangered species are expected.
Livestock Grazing and Management	Livestock grazing will continue to be authorized at 1,108 AUMs or adjusted to meet range management objectives. Operating costs on allotments within the WSA would remain uniform.	Livestock grazing would continue to be authorized at current numbers, subject to good range management practices. Operating costs within the WSA would be up to 25% higher due to wilderness protection restrictions.	Established grazing use would continue as under the All Wilderness Alternative. Increasing the size of the designated area would expand range land subject to wilderness protection criteria by an additional 2,056 acres.
Mineral Exploration and Production	Oil and gas would be available for leasing on 6,140 acres but development potential is low. No leasing would be permitted on the 1,600 acre ACEC. Potential tar sand deposits would be available for development subject to lease stipulations.	Development of 3 existing post-FLPMA leases would be subject to wilderness protection measures.	Mineral exploration and development would be restricted as under the All Wilderness Alternatives.
Timber Production	Approximately 432 acres of commercial forest land and 170 acres of woodlands would remain in the timber harvest base. Stands suitable for forest management would be brought into a more productive condition.	All forest land would be removed from the timber harvest base. Timber stands would be subject to natural ecological processes. There would be a small adverse impact on timber production and on the local timber industry.	Timber harvesting would be restricted as under the All Wilderness Alternative through out the expanded area to be designated under this alternative.
Water Quality	Existing water quality could be affected by several surface disturbing and chemical land treatments. Soil disturbances would increase sediment loading of Medicine Lodge Creek. The 1,600 acre Area of Critical Environmental Concern within the WSA would protect water quality within karst formation.	Restrictions on the use of pesticides and herbicides would prevent chemical contamination of the aquatic environment. Increased human use may cause fecal contamination of Medicine Lodge Creek. The ACEC designation on 1,600 acres would result in management attention being focused on the karst formation and any threat to water quality in the area would be acted upon immediately.	Effects on water quality would be essentially the same as under the All Wilderness Alternative.

ALTERNATIVES - ALKALI CREEK

Alkali Creek WSA—No Wilderness Alternative (Proposed Action)

With this alternative none of the 10,100 acres would be recommended for wilderness designation and the area would be managed as described below.

Minerals Management. All 10,100 acres in the present Alkali Creek WSA would be available for mineral location and leasing under this alternative. The WSA's moderate tar sand potential is based upon the occurrence of favorable geologic conditions and the presence of stratigraphic traps updip in the WSA. The Alkali Creek WSA currently has no mineral leases issued after passage of the Combined Hydrocarbon Act of November 16, 1981. Only in leases issued after passage of this act could tar sands be developed by strip mining methods if strip mining is compatible with surface protection stipulations identified on the lease. Therefore, development of the WSA's tar sands within the short-term will most likely not occur. However, when this area is no longer under further consideration for wilderness designation and mineral leases are again issued, development of the areas tar sand resources could occur at a rate of about 10 acres per year for a minimum of 10 years. Under existing economic conditions, i.e., relatively low price of oil, no development is expected.

Production of oil and/or gas by drilling methods within the WSA is not expected to occur. Based on existing information, the WSA has low oil and gas potential.

Degradation of scenic quality, watershed and wildlife values from oil and gas exploration and development would be minimized because:

1. Approximately 6,100 acres or 60 percent of the WSA would be subject to no surface disturbance due to slopes over 25 percent. This acreage is scattered throughout the WSA and is not mapped.
2. Approximately 160 acres currently would be subject to no surface occupancy in order to protect known sage grouse strutting habitat.
3. All of the WSA would be subject to no surface disturbance from November 15 to April 30 in order to protect big game ungulate winter habitat.
4. Approximately 50 percent of the WSA currently would be subject to no surface disturbance from February 1 to July 31 in order to protect known sage grouse nesting habitat.

The complete wording of these stipulations is described in the Wyoming BLM Standard Stipulations for Surface Disturbing Activities (Appendix E).

Several stipulations may apply similar restrictions to the same tract of land to protect different resource uses or values. If a stipulation is no longer needed to protect a certain resource because of changes in resource availability, resource use, or development technology; that stipulation could be waived after appropriate site specific environmental analysis. However, the other stipulations may still restrict some or all activities on the tract of land to protect other resource uses or values.

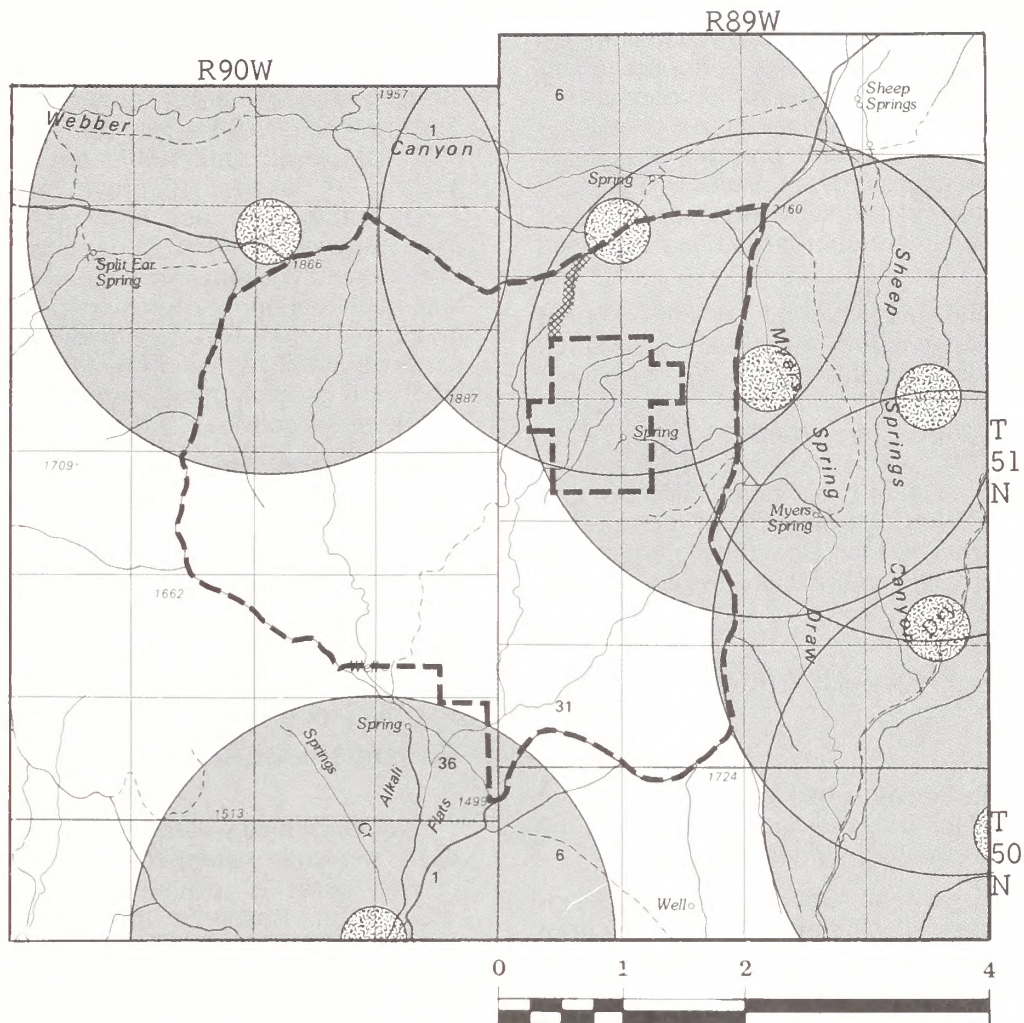
These stipulations would be applied to all or most hydrocarbon leases throughout the Alkali Creek WSA. However, due to the dynamics of raptor and sage grouse nesting the extent of the seasonal restrictions could change.


Development of tar sand deposits would be subject to lease stipulations and an environmental analysis of the operator's plan of operations. However, no activity is currently anticipated due to low demand for petroleum products and the existing economic situation.

Exploration and development of locatable minerals would be governed by existing laws as delineated in 43 CFR 3809 regulations. As provided for in this regulation, exploration and mining could not cause unnecessary or undue degradation of the public lands. No locatable mineral development activities are anticipated due to current economic conditions and only low to moderate potential for occurrence.

Recreation Management. Dispersed recreation use would continue but under direction of a West Slope Recreation Area Management Plan designed to reduce use conflicts and protect fragile resources. The WSA would be designated as "Limited" for ORV use. Off-road vehicle use would be restricted to designated roads and trails and by seasons of use to minimize conflicts with crucial elk and mule deer winter range and to maintain existing semi-primitive nonmotorized recreation opportunities. Authorization of commercial outfitter/guide use would continue under a permit system. Scenic quality would be managed to protect dominant views found in the characteristic landscape, such as views of the Bighorn Mountains and canyons.

Grazing Management. Two grazing allotments associated with the Alkali Creek WSA have been initially classified as "I" (improvement) category allotments. Grazing use within these allotments



-  Sage Grouse Strutting Habitat
-  Sage Grouse Nesting Habitat
-  Wilderness Study Area Boundary
-  Excluded Area

NOTE: Additional restrictions apply within this area. See Minerals Management narrative.

Map 10
OIL AND GAS LEASE RESTRICTIONS
WILDLIFE
No Wilderness Alternative
ALKLI CREEK WSA (WY-010-241)

ALTERNATIVES - ALKALI CREEK

will be evaluated and adjustments in grazing use (number of animals/or seasons of use) may be made.

Existing range improvements will be maintained by individual grazing permittees under provisions of a range improvement permit or cooperative agreement. This could involve the use of vehicles and heavy equipment, and possibly the development of new access routes. Several sagebrush and juniper control projects and approximately 1 mile of fence construction have been proposed in the area.

Wildlife Habitat Management. Wildlife habitat would be managed to provide crucial winter range habitat for seasonal game animal populations of approximately 300 elk, 300 mule deer and 200 chukar partridge. The West Slope Habitat Management Plan will provide direction for maintaining both game and nongame animals and associated habitat. Game animal population objectives (Strategic Plan Goals) will continue to be established by the WG&FD, in consultation with BLM and the public.

Alkali Creek WSA—All Wilderness Alternative

With this alternative, all 10,100 acres would be recommended for wilderness designation and the area would be managed as described below.

Minerals Management. When an area is designated wilderness, all minerals are withdrawn from all forms of appropriation under all laws pertaining to mineral location and leasing. Therefore, under wilderness designation, no new mining claims could be filed and no new mineral leases would be issued. Development of six existing post-FLPMA oil and gas leases that cover all 10,100 acres within the WSA would be subject to either a wilderness protection stipulation (Appendix A) or wilderness protection measures identified through project specific environmental analysis.

Recreation Management. Recreational ORV use would be eliminated from the designated area but would be allowed to continue on the cherry-stem road excluded from designation. Only primitive recreation opportunities such as walk-in hunting, horseback riding, backpacking and other nonmotorized recreational pursuits would be acceptable. Recreation management actions would include continued authorization of

commercial outfitter/guide permits for big game hunting. Signs and visitor use registers would be installed for monitoring recreation use. Additional facilities would be constructed only if visitor use threatened the wilderness resource.

Grazing Management. Authorization of livestock grazing for the WSA would remain at the current 811 AUM level, until AMPs are revised and/or actions are taken to improve range condition. These actions may include changes in season of use, changes in kind and class of livestock, changes in total amount of grazing use authorized, and implementing or revising grazing management systems. Restrictions on the use of motorized vehicles would result in more manual labor and possibly more expensive materials for maintenance activities.

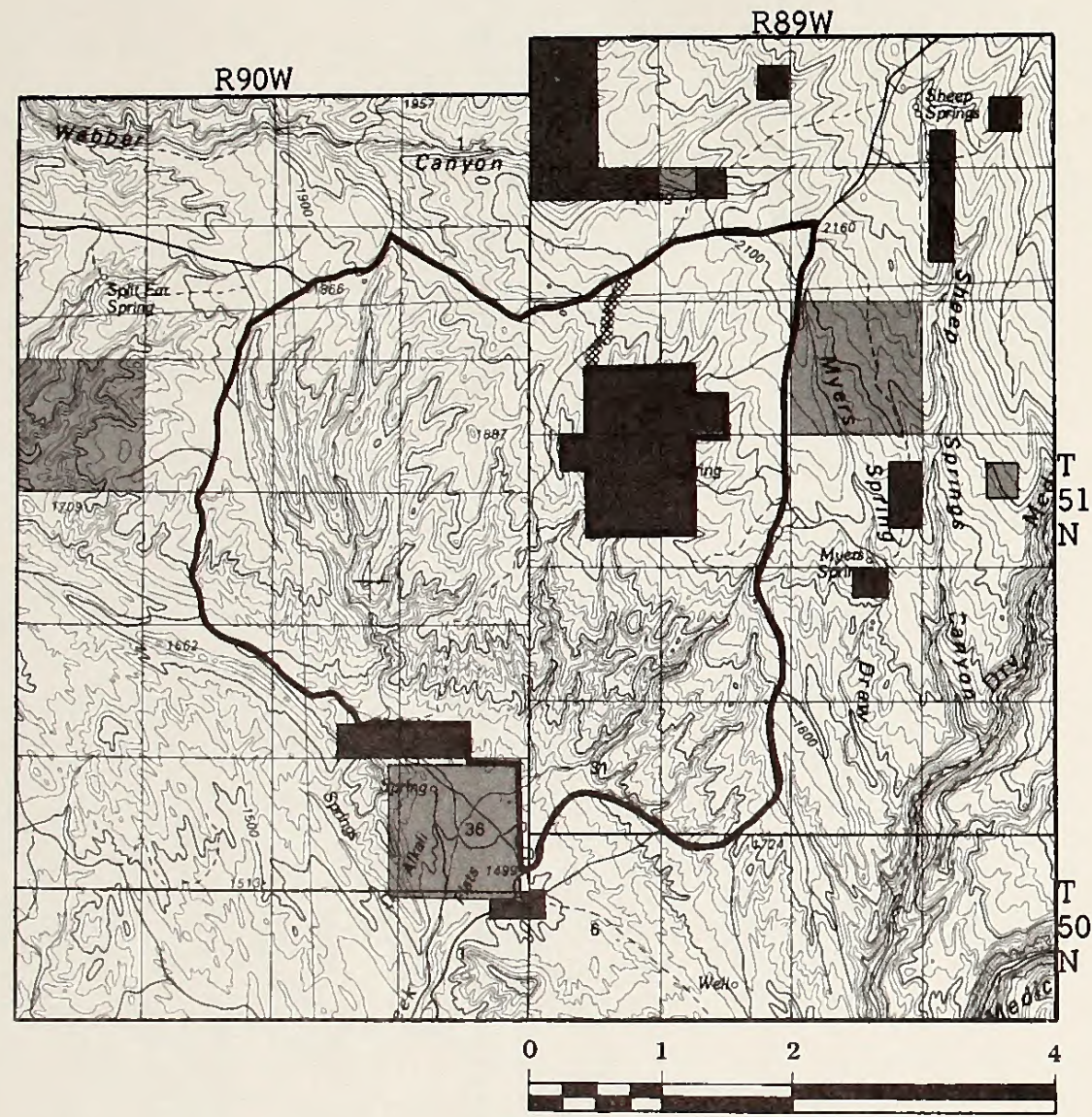
Wildlife Habitat Management. The West Slope Habitat Management Plan includes the Alkali Creek WSA. Objectives in the HMP for this area are to maintain existing elk and mule deer numbers and to improve habitat conditions. Wildlife habitat and populations will be monitored on a regular basis.

Alkali Creek WSA—Wilderness Enhancement Alternative

This alternative would recommend the existing WSA, the cherry-stem road and the acquisition of 680 acres of private land for wilderness designation. Resource management objectives would be the same as specified for the All Wilderness Alternative. No development plans are known within the add-on lands that would hinder wilderness management objectives, although 40 acres within this 680 acres private inholding contains private mineral estate.

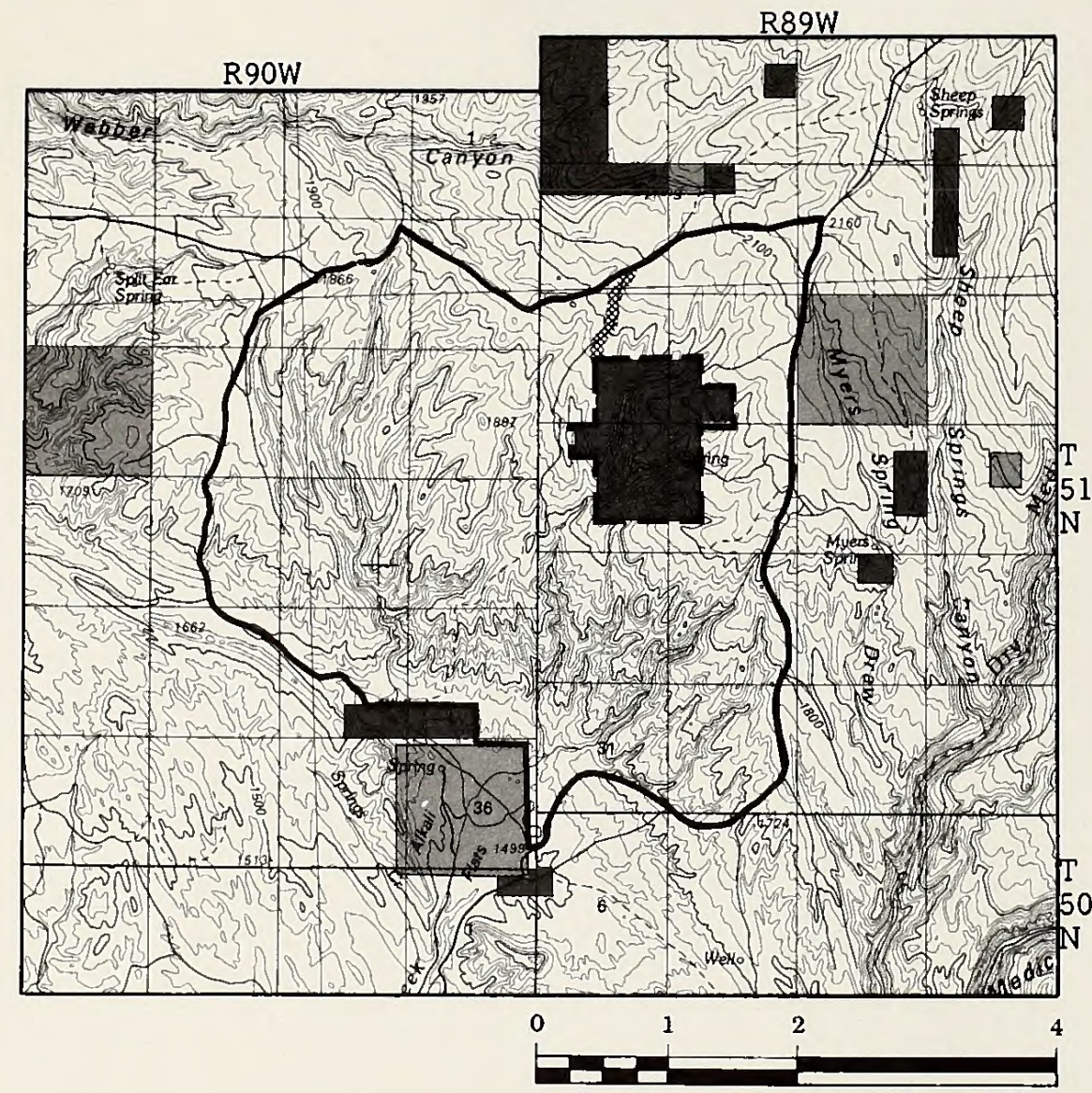
Alkali Creek WSA—Partial Wilderness Alternative

This alternative would recommend a portion of the existing WSA suitable for wilderness designation. A total of 8,187 acres of public lands without interference of the cherry-stem road or private inholding would be managed for protection of wilderness values. Specific resource management objectives would be the same as those for the All Wilderness Alternative.



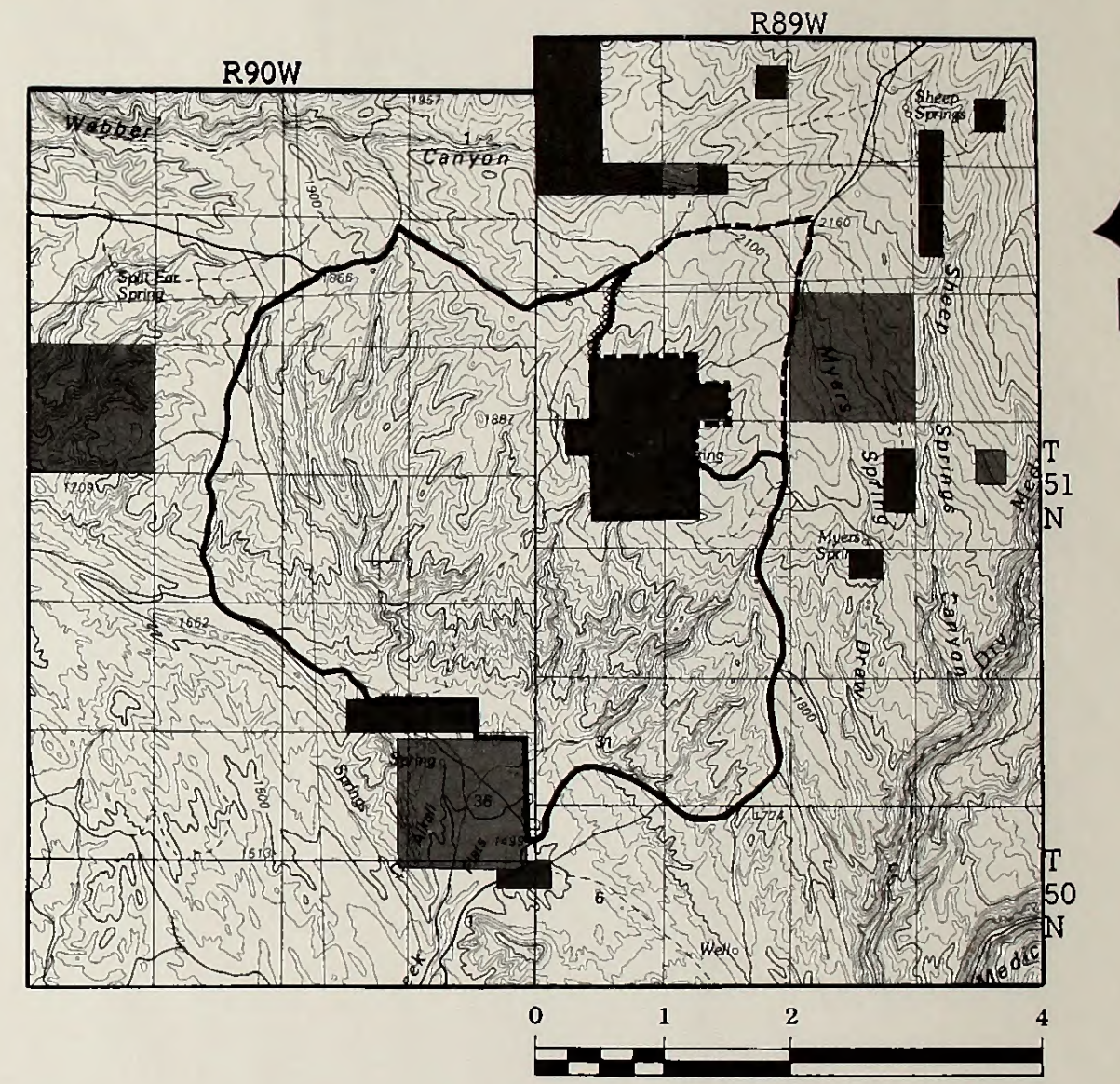
- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary and Alternative Designation Boundary
- Excluded Area

Map 11
ALKALI CREEK WSA (WY-010-241)
All Wilderness Alternative And Existing WSA



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Alternative Designation Boundary
- Excluded Area

Map 11
ALKALI CREEK WSA (WY-010-241)
Wilderness Enhancement Alternative



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Alternative Designation Boundary
- Excluded Area

Map 11
ALKALI CREEK WSA (WY-010-241)
Partial Wilderness Alternative



1. The first part of the map is a plan view of the area, showing the general layout of the site. It includes the main building, the entrance, and the surrounding area. The plan view is drawn to a scale of 1:1000.

2. The second part of the map is a section view of the area, showing the vertical profile of the site. It includes the main building, the entrance, and the surrounding area. The section view is drawn to a scale of 1:1000.

3. The third part of the map is a detail view of the area, showing the specific features of the site. It includes the main building, the entrance, and the surrounding area. The detail view is drawn to a scale of 1:500.

1. The first part of the map is a plan view of the area, showing the general layout of the site. It includes the main building, the entrance, and the surrounding area. The plan view is drawn to a scale of 1:1000.

2. The second part of the map is a section view of the area, showing the vertical profile of the site. It includes the main building, the entrance, and the surrounding area. The section view is drawn to a scale of 1:1000.

3. The third part of the map is a detail view of the area, showing the specific features of the site. It includes the main building, the entrance, and the surrounding area. The detail view is drawn to a scale of 1:500.

TABLE 5
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
ALKALI CREEK

Issue	Proposed Action		All Wilderness Alternative	Wilderness Enhancement Alternative	Partial Wilderness Alternative
	No Wilderness Alternative	Wilderness Alternative			
Wilderness Values	If potential tar sand deposits are developed, long-term adverse affects on wilderness values could result.		Wilderness values on 10,100 acres would receive long-term protection through wilderness designation. Activities which would modify natural character would be prohibited.	Wilderness values would be preserved on 10,811 acres. The area would receive long-term protection through wilderness designation.	Wilderness values would be preserved on 8,187 acres. The area would receive long-term protection through wilderness designation.
Recreation Use and Quality	There would be an eventual increase in improved access resulting from mineral exploration. This would enhance motorized recreation opportunities. Vehicle use would be limited to designated roads and trails and by seasons of use.		Motorized vehicle use would be prohibited except for on the cherry-stem road. The quality of the recreation resource would remain high.	There would be a loss of motorized recreation opportunities on the cherry-stem road.	Impacts on recreation use would be similar to the All Wilderness Alternative except the area to be designated would be reduced in size.
Wildlife	Approximately 20% of Mule deer and elk populations could be displaced as a result of tar sand development. No impacts to threatened and endangered species are expected.		Crucial winter range habitat for elk and mule deer would have long-term protection. Activities on the cherry-stem road and private inholding could displace wildlife.	Wildlife security would be improved due to less of an opportunity to stress wildlife from mineral and range development activities.	Restrictions on mineral development would enhance wildlife habitat. Some deer and elk displacement would occur on the deleted land area if mining claims and mineral leases were developed. No impacts to threatened and endangered species are expected.
Livestock Grazing and Management	Existing livestock grazing will continue to be authorized or adjusted to meet range management objectives. Operating costs would remain uniform over all portions of grazing permits.		Livestock grazing would continue at existing numbers subject to good range management practices. Operation costs within the designated area would be 25% higher due to wilderness protection.	Established grazing use would continue as under the All Wilderness Alternative. Increasing the size of the designated area would expand range land subject to wilderness protection criteria.	Impacts on livestock grazing would be similar to the All Wilderness Alternative except the area to be designated would reduce range land subject to wilderness protection criteria.
Mineral Exploration and Production	Oil, gas and tar sand deposits would be available for leasing. Tar sands could be developed at a rate of approximately 10 acres per year for about 10 years. Locatable minerals would be available for development through mining claim procedures.		Five potential tar sand deposits within the WSA will be prohibited from further exploration and development. Development of post-FLPMA oil and gas leases would be subject to wilderness protection measures. Location of mining claims would not be allowed.	Mineral exploration and production would be restricted as under the All Wilderness Alternative. Impacts to mineral resources for additional lands to be designated are negligible.	Mineral exploration and production would be restricted as under the All Wilderness Alternative. The reduced size of the designated area would place less restrictions on mineral exploration and development.

TABLE 5 (Continued)
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
ALKALI CREEK

Issue	Proposed Action No Wilderness Alternative	All Wilderness Alternative	Wilderness Enhancement Alternative	Partial Wilderness Alternative
Water Quality	Sedimentation originating from the tar sand development and salinity from produced water discharges would be the primary water quality concern.	Existing water quality would be maintained.	Same as All Wilderness Alternative.	Same as All Wilderness Alternative.

ALTERNATIVES - TRAPPER CREEK

Trapper Creek WSA—All Wilderness Alternative (Proposed Action)

With this alternative, 7,200 acres would be recommended for wilderness designation and the area would be managed as described below.

Minerals Management. When an area is designated wilderness, all minerals are withdrawn from all forms of appropriation under all laws pertaining to mineral location and leasing. Therefore, under wilderness designation, no new mining claims could be filed and no new mineral leases would be issued. Development of five existing post-FLPMA leases that cover 4,899 acres within the WSA would be subject to either a wilderness protection stipulation (Appendix A) or wilderness protection measures identified through project specific environmental analysis. The practical effect of the wilderness protection stipulation and wilderness non-impairment criteria may result in no surface occupancy or possibly no mineral development within most of the lease acreage.

Recreation Management. The designated area would be managed for providing low levels of primitive recreation use such as walk-in hunting, fishing, spelunking, horseback riding and backpacking. The entire area would be closed to recreational ORV. Establishment of visitor use restrictions may become necessary in order to maintain solitude and primitive unconfined recreation experiences within the confines of Trapper Canyon. Authorization of commercial outfitter/guide use will continue under a permit system. Signs and visitor use registers will be installed for monitoring recreation use.

Grazing Management. Authorization of livestock grazing for the WSA would remain at the current 498 AUM level until AMPs are revised and/or actions are taken to improve range condition. These actions may include changes in season of use, changes in kind and class of livestock, changes in the total amount of grazing use authorized, and implementing or revising grazing management systems. Motorized vehicle use restrictions may result in an increase in manual labor, time and convenience of managing livestock.

Wildlife Habitat Management. Lands in the Trapper Creek WSA are also included within the West Slope Habitat Management Plan. The objectives for the HMP (see Medicine Lodge WSA, Wildlife Habitat Management discussion) in this area are to maintain elk and mule deer popu-

lations. Wildlife habitat conditions and populations (especially threatened and endangered species) will be monitored periodically.

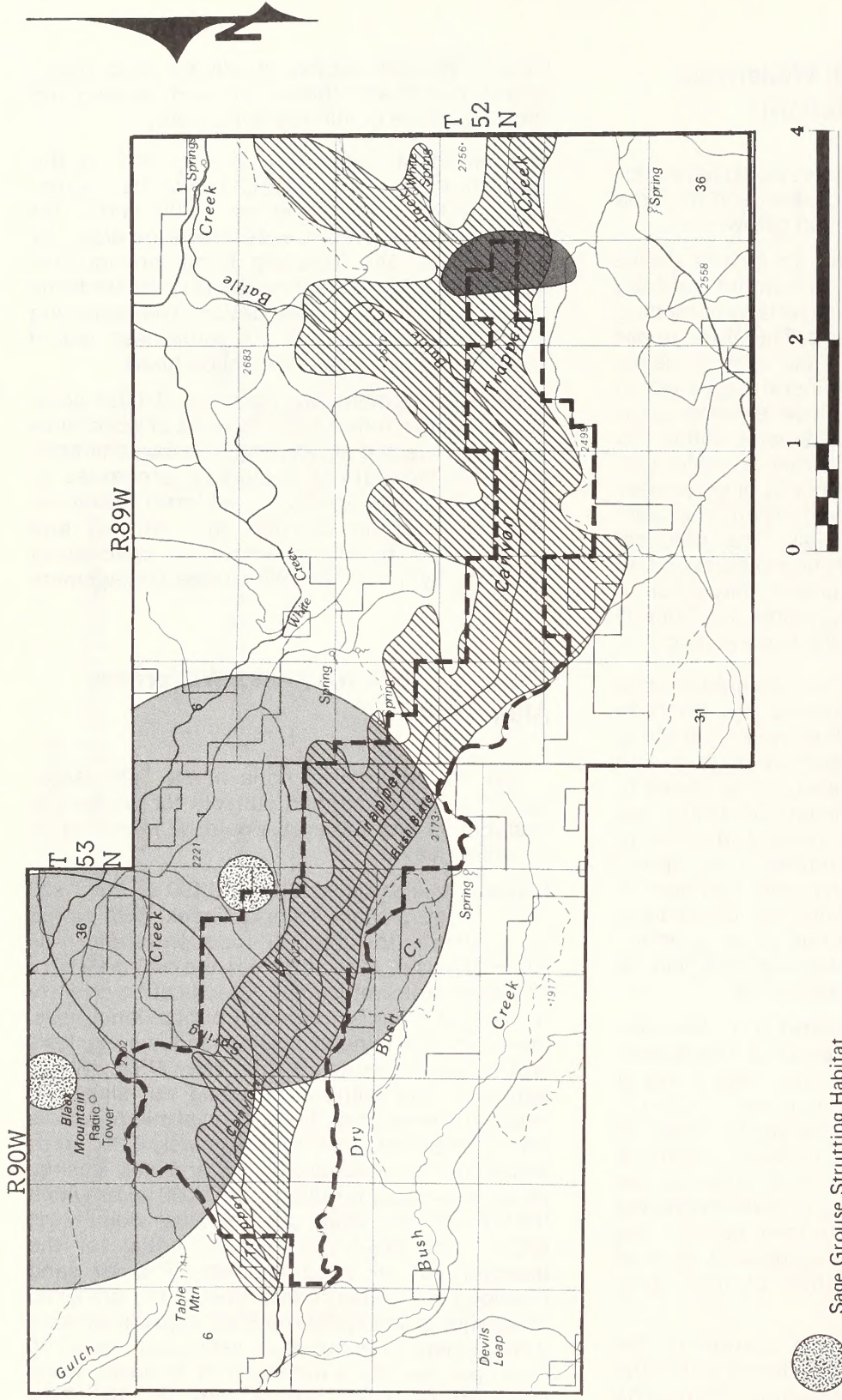
Watershed Management. A segment of the Spanish Point Karst ACEC would be recommended for designation on 1,000 acres, for protection of important water recharge areas for the Madison and Tensleep formation aquifers. Specific ACEC goals are identified in the Medicine Lodge, No Wilderness discussion. The remaining 6,200 acres designated as wilderness would complement watershed protection goals.

Forest Management. Management of 1,324 acres of commercial forest and 276 acres of woodlands would be directed at retaining primitive character and allowing natural ecological processes to operate fully. Management of all forest resources, including cutting of trees and shrubs, and reforestation practices would be specifically governed by the BLM's "Wilderness Management Policy."

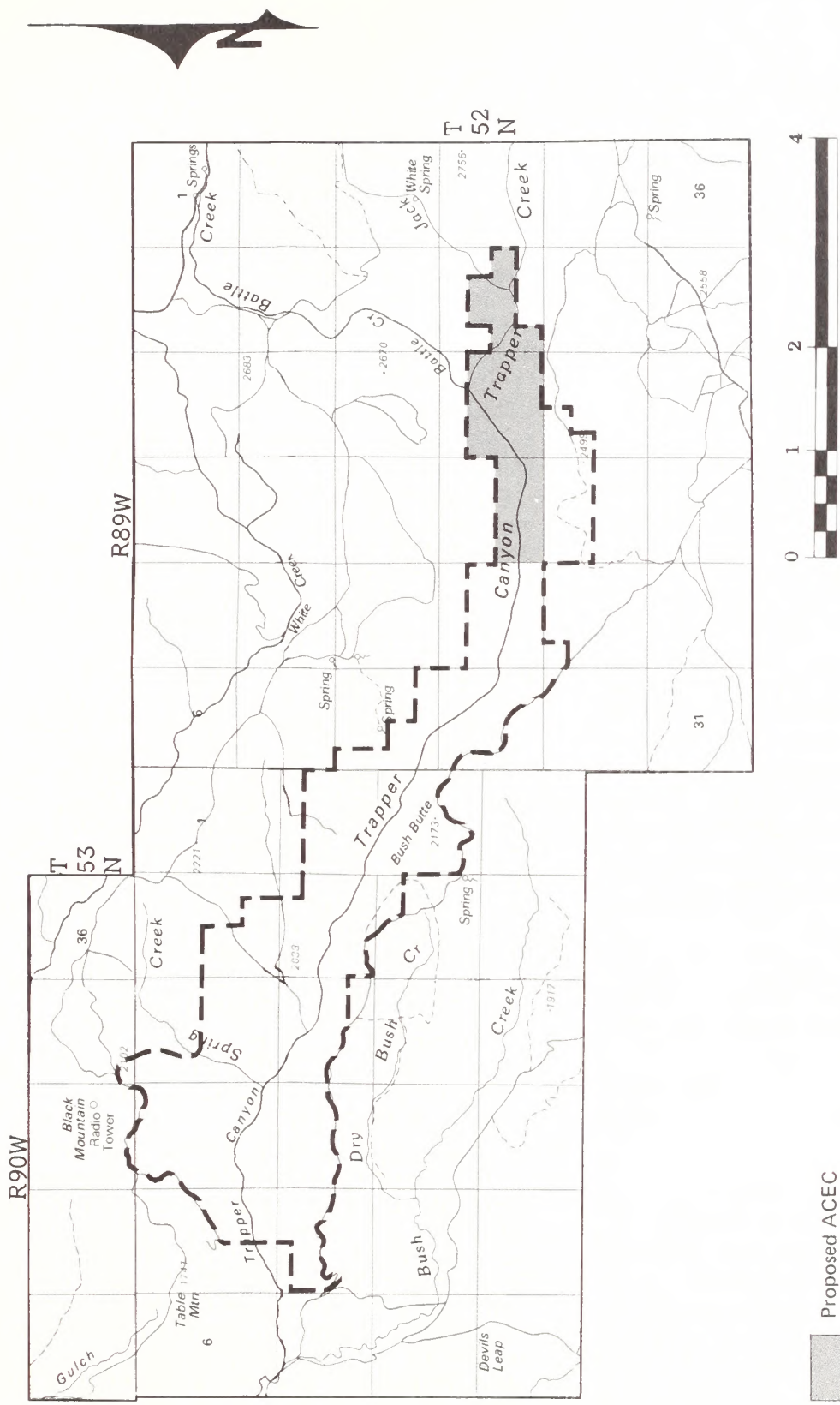
Trapper Creek WSA—No Wilderness Alternative

With this alternative, none of the 7,200 acres would be recommended suitable for wilderness designation and the area would be managed as described below.

Minerals Management. About 6,490 of the 7,200 acres in the present Trapper Creek WSA would be available for mineral location under this alternative. An application for the withdrawal of 710 acres from settlement, sale, location or entry under the nondiscretionary public land laws, including the mineral leasing and mining laws would be pursued within the WSA. When approved, this withdrawal would not allow the leasing of minerals or the location of mining claims on the proposed lands. Approximately 6,200 acres would still be available for oil and gas leasing. No leasing would be allowed on 1,000 acres within the WSA for protection of the Spanish Point Karst ACEC. The WSA has high potential for the discovery of tar sand deposits. The tar sand development scenario described in the preferred alternative of the Washakie RMP expects tar sand development to occur at an estimated rate of 10 acres per year for a minimum of 10 years, when these leases expire, about 1992 to 1994. This development would occur only on leases issued after passage of the Combined Hydrocarbon Act (CHA) on November 16, 1981. There are currently



NOTE: Additional restrictions apply within this area. See Minerals Management narrative.



Map 13
 Proposed
 SPANISH POINT KARST ACEC
 Within
 TRAPPER CREEK WSA (WY-010-242)

ALTERNATIVES - TRAPPER CREEK

five leases issued after this date that represent 2,745 acres within the WSA. Tar sand deposits located within these leases could be developed through strip mining methods provided the no surface occupancy stipulation is not applied under the right granted by the lease. Standard operating procedures will require an environmental analysis of a proposed plan of operation before tar sand mining would be permitted.

Production of oil and/or gas by drilling methods within the WSA is not expected to occur, due to unfavorable geologic conditions. Based on existing information, the WSA has low oil and gas potential.

If leases are explored degradation of scenic quality, watershed and wildlife values from mineral development would be minimized because:

1. Approximately 4,500 acres or 65 percent of the WSA would be subject to no surface disturbance due to slopes over 25 percent. Steep slopes are found throughout the WSA and are not mapped.
2. All the WSA would be subject to no surface disturbance in order to protect an important scenic area.
3. Approximately 20 acres is currently subject to no surface occupancy in order to protect known sage grouse strutting habitat.
4. Approximately 80 percent of the WSA would be subject to no surface occupancy in order to protect a special resource (Trapper Canyon).
5. All of the WSA would be subject to no surface disturbance from November 15 to April 30 in order to protect big game ungulate winter habitat.
6. Approximately 10 percent of the WSA would be subject to no surface disturbance from May 1 to June 30 in order to protect a known elk calving area.
7. Approximately 50 percent of the WSA would be subject to no surface disturbance from February 1 to July 31 in order to protect known sage grouse nesting habitat.

The complete wording of these stipulations is described in the Wyoming BLM Standard Stipulations for Surface Disturbing Activities (Appendix E).

Several stipulations may apply similar restrictions to the same tract of land to protect different resource uses or values. If a stipulation is no longer needed to protect a certain resource because of changes in resource availability,

resource use, or development technology; that stipulation could be waived after appropriate site specific environmental analysis. However, the other stipulations may still restrict some or all activities on the tract of land to protect other resource uses or values.

These stipulations would be applied to all or most portions of combined hydrocarbon leases within the Trapper Creek WSA. However, due to the dynamics of raptor and sage grouse nesting and elk calving the extent of the seasonal restrictions could change.

Development of tar sand deposits would be subject to lease stipulations and an environmental analysis of the operator's plan of operations.

Exploration and development of locatable minerals would be governed by existing laws as delineated in 43 CFR 3809 regulations. However, no development is anticipated due to low to moderate potential and current economic conditions.

Recreation Management. Management of recreation values would be directed by the West Slope Special Recreation Area Management Plan. Goals of the RAMP include reduction of access conflicts, resource use conflicts and resource protection. The WSA would be designated as "Closed" on 1,200 acres and as "Limited" to ORVs within the remaining unit. Off-road vehicle use restrictions would limit vehicle travel to designated roads and trails on a seasonal basis to eliminate disturbances on elk and mule deer crucial winter range. There would be an effort to maintain existing semi-primitive nonmotorized recreation opportunities such as fishing, spelunking and hunting.

Scenic quality would be managed to protect values in the characteristic landscape such as views of the Bighorn Mountains, canyons and dominant vegetation types.

Watershed Management. An Area of Critical Environmental Concern (ACEC) encompassing about 1,000 acres would be designated within the existing Trapper Creek WSA to protect important water recharge areas for the Madison and Tensleep formation aquifers. The ACEC management plan for the Trapper Creek area would pursue goals of protecting water entering caves and sinking stream segments from unnecessary sedimentation and chemical pollutants due to surface disturbing silvicultural and agricultural activities. Specific actions to accomplish this goal are:

1. Karst and cave areas would be withdrawn from mineral location.

ALTERNATIVES - TRAPPER CREEK

2. Logging restriction on season, slope, and equipment use would be applied.
3. Use of insecticides, herbicides and silvicultural chemicals would be prohibited.
4. The area would not be leased for hydrocarbon development.
5. A cooperative watershed management agreement with the United States Forest Service would be pursued.
6. All roads would be closed and reclaimed where accelerated erosion is occurring.

The remaining public land within the WSA not designated as an ACEC would be managed in accordance with the following watershed objectives:

1. Streams in the WSA with sport fish management potential would be recommended for nondegradation. Produced or waste water discharges would not be permitted.
2. Areas in full wildfire suppression zones above sinking stream segments and caves would have special restrictions applied to suppression activities.
3. Motor vehicles and excavation equipment would not be allowed to operate within 200 yards of Dry Medicine Lodge, Medicine Lodge or Trapper creeks and other tributaries exhibiting karst characteristics.
4. Air dropped fire retardant would not be allowed within 800 yards of Trapper Creek.

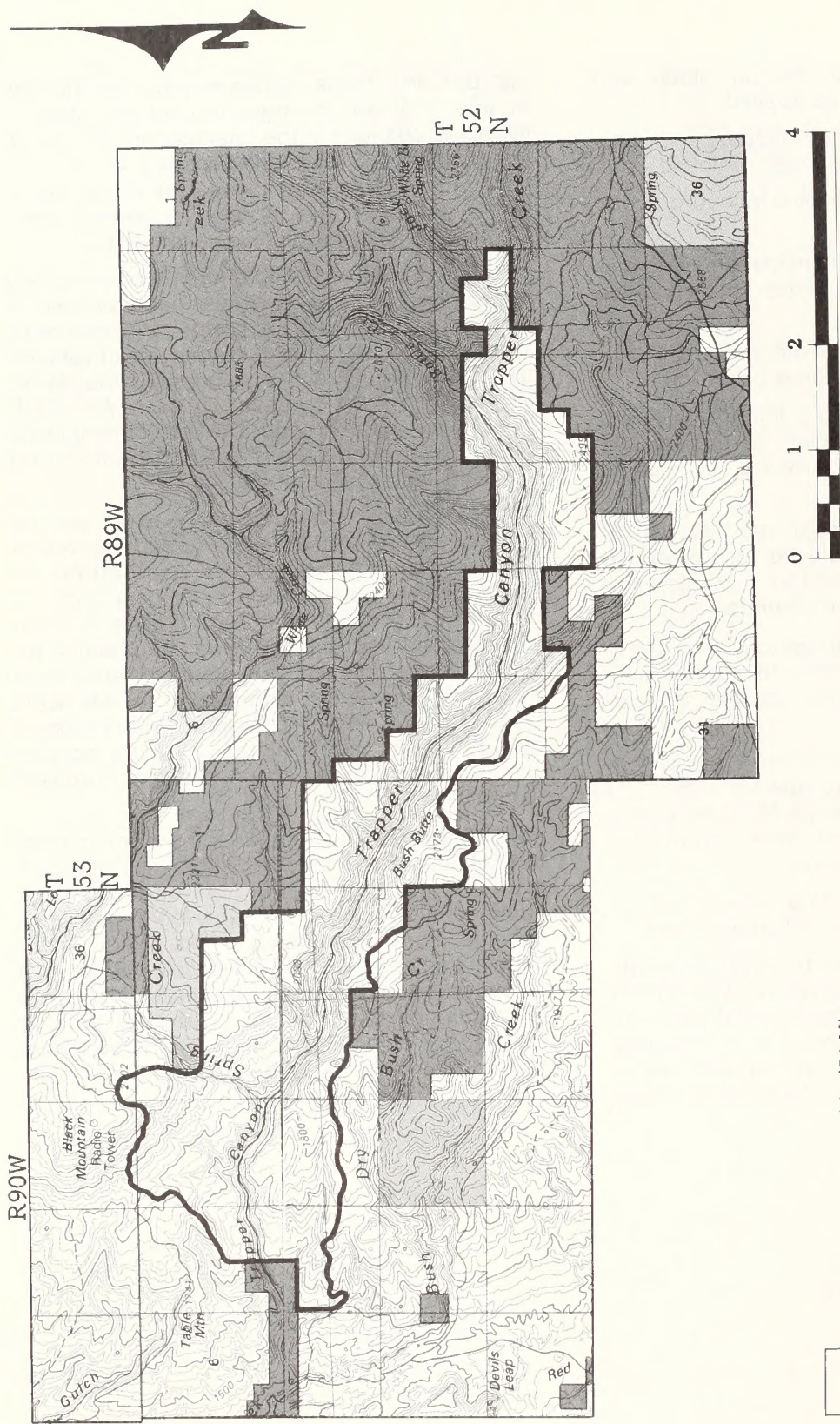
Grazing Management. All five grazing allotments associated with the Trapper Creek WSA have been initially classified as "I" (improvement) category allotments. Grazing use within the "I" category allotments will be evaluated and adjustments in grazing use (number of animals/or seasons of use)

may be made. These actions may include changes in season of use, changes in kind and class of livestock, changes in the total amount of grazing use authorized, and implementing or revising grazing management systems. Due to allotments with higher priorities, it may be several years before actions occur on these allotments.

Existing range improvements will be maintained by individual grazing permittees under provisions of a range improvement permit or cooperative agreement. This could involve the use of vehicles and heavy equipment, and possibly the development of new access routes. An AMP prescription in the Trapper Creek Allotment plans a sagebrush control prescribed burn project on about 400 acres within the WSA.

Wildlife Habitat Management. Habitat will be maintained or improved for existing year round and seasonal game animal populations of approximately 500 elk, 300 mule deer and 100 chukar partridge. The West Slope Habitat Management Plan provides primary direction for wildlife habitat management within the area. West Slope HMP goals are identified in the Medicine Lodge WSA Wildlife Habitat Management discussion. At this time there are no specific wildlife habitat development projects proposed within the WSA.

Forest Management. All 1,324 acres of commercial forest land and 276 acres of woodlands would be available for the production of wood-fiber commodities. As the use of cable logging systems become more widespread in this region, commercial timber not currently available due to steep slopes will become more accessible for harvesting. Management of all forest resources will be directed by objectives in the West Slope Forest Management Plan. No timber sales are currently planned in the area.



ALTERNATIVES - TRAPPER CREEK

TABLE 6
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
TRAPPER CREEK

Issue	No Wilderness Alternative	Proposed Action All Wilderness Alternative
Wilderness Values	Most wilderness values in the canyon would be retained. Existing uses such as livestock grazing and non-wilderness recreation activities would continue. If development of tar sand or timber resources becomes economically feasible, adverse affects to wilderness values may occur.	A multitude of wilderness values including archeological sites, bald eagle and peregrine falcon habitat, trout fishery, a proposed National Natural Landmark, cave resources, and a water recharge area would receive long-term protection.
Recreation Use and Quality	Recreation use would be managed to protect semi-primitive nonmotorized qualities as part of the West Slope Canyons, Special Recreation Management Area. Vehicle use would be closed on 1200 acres and limited to designated roads and trails and by seasons of use in the remaining area. About 710 acres of the WSA would be withdrawn from mineral location and leasing to protect cave ecosystems. Visitor use levels are not expected to change in the near future.	Opportunities for outstanding primitive recreation experiences would be preserved. The quality of the recreation resource would remain high. A slight increase in visitation is expected as a result of publicity focused on the designation process.
Wildlife	Range, mineral, and timber development activities would result in a 20% displacement of WSA mule deer and elk populations.	Elk and mule deer crucial winter range habitat would be maintained. All forms of wildlife would benefit from the preservation of natural character within Trapper Canyon area. Reintroduction of the endangered Peregrine Falcon could occur by 1990. The maintenance of habitat for natural reinhabitation would be assured.
Fisheries	Fish populations within 10 miles of Class 3 trout fishery could be reduced and trout habitat degraded.	Trout habitat preservation would be emphasized. The opportunity to catch wild trout would be preserved.
Wetlands	Existing low human use levels within Trapper Canyon will not effect wetland conditions. Livestock utilization of the riparian zone will continue.	Anticipated human use levels will not effect wetland conditions. The riparian zone will be protected from livestock use.
Timber Production	Approximately 80 MBF of timber could be harvested annually. This represents about 8% of the forest resource base in the Washakie Resource Area.	Removal of approximately 1,324 acres of commercial forest land and 276 acres of woodlands from the timber harvest base will have a small adverse impact on timber production and local timber industry.
Livestock Grazing and Management	Grazing use and management practices would continue at exiting levels or be adjusted to meet range management objectives. Motorized vehicle access would allow ease of range project maintenance and development. Operating costs would remain uniform within allotments.	Existing livestock grazing would continue at current levels. Restrictions on motor vehicle access and design of range improvement projects would be implemented. An approximate 25% increase in operating costs for operators with allotments within the WSA will occur.
Mineral Exploration and Production	Oil, gas and tar sand deposits could be developed subject to lease and permit stipulations. No mineral leasing would occur on the 1,200 acre ACEC. Mineral location and leasing opportunities would be withdrawn on 710 acres for protection of cave ecosystems.	Two potential tar sand deposits will not be explored or developed. Locatable minerals within the designated area would not be developed.

ALTERNATIVES - TRAPPER CREEK

TABLE 6 (Continued)
COMPARATIVE SUMMARY OF IMPACTS BY ALTERNATIVES
TRAPPER CREEK

Issue	No Wilderness Alternative	Proposed Action All Wilderness Alternative
Water Quality	There would be a higher likelihood of water quality deterioration from increased sedimentation, salinity and possibly introduction of chemical pollutants in both surface and ground water. An Area of Critical Environmental Concern would be designated on 1,200 acres within Trapper Canyon to protect a significant ground water recharge zone.	Designation of this area would eliminate most soil disturbing activities and potential for chemical pollutants to enter Trapper Creek. Increased human traffic may cause additional sedimentation and fecal contamination in Trapper Creek. A 1,200 ACEC would be designated within Trapper Canyon to protect a significant ground water recharge zone.

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

This chapter includes a brief description of the elements of the environment that could be affected by actions proposed in the alternatives. The following resources do not occur or would not be affected by any actions proposed: floodplains, prime or unique farmlands, air quality, wild or scenic rivers, or vegetation.

HONEYCOMBS

Mandatory Wilderness Characteristics

Size

The Honeycombs WSA contains 21,000 acres of public land and does not depend on other lands for size integrity. Although there are no state or private inholdings, three sections of state land adjoins this WSA.

Naturalness

The Honeycombs consists of two land forms. A central core area is comprised of sharply eroded, strongly dissected badlands. The area around the core is rolling to steep hills. Elevations in the unit range from about 5,000 feet above sea level along the east boundary to about 4,400 feet where the west boundary crosses East Fork Nowater Creek.

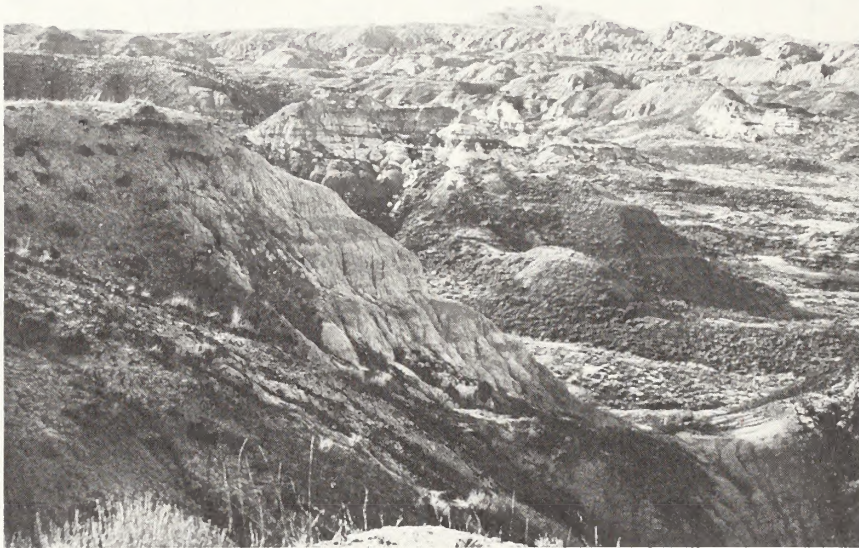
The density of vegetation decreases as the badland topography becomes more prevalent. Sagebrush and grasses are the most common vegetation. However, the majority of vegetation is found in the drainages, leaving most hillsides and ridge tops sparsely vegetated. Drainages exhibit substantially more greasewood and scattered rabbitbrush.

Intrusions on natural qualities include bladed trails which range from shallow cuts in stream terraces which leaves low berms along the trails, to deep cuts down hillsides perpendicular to contours. These trails were bladed once for a single purpose (oil and gas exploration) and have received no maintenance. They were not considered vehicle routes or roads during the inventory analysis.



Honeycombs badlands.

AFFECTED ENVIRONMENT - HONEYCOMBS



View within Honeycombs towards North Butte.

Two-track roads which are the northwest and southwest boundary of the unit are maintained and used.

Two other vehicle trails provide access to the interior of the unit. The visual impact of bladed trails in the unit is decreasing with time because of lack of use, erosion, and natural revegetation.

Twenty-one reservoirs of various sizes have been built within the WSA to enhance grazing management. Of these reservoirs, fifteen support wetland habitat and seven provide water for livestock grazing and wildlife. Grazing allotment pasture fences also exist. A cow camp located just inside the unit boundary in T. 46 N., R. 90 W., Section 32, NW $\frac{1}{4}$ SW $\frac{1}{4}$, is used annually. One dry oil well and three water wells are located in the unit.

The overall impact of intrusions on the naturalness of the unit is slight. The works of man are substantially unnoticeable due to their dispersal, their size, natural screening provided by very rugged terrain, and natural healing of scars through erosion and revegetation. The unit has apparent naturalness.

Outstanding Opportunities

Solitude exists because of limited use within the unit. Livestock grazing and some forms of recreation use are seasonal. Oil and gas activity

is common around the perimeter of the unit, but is has not penetrated the interior of the unit. The few (if any) people in the unit at any one time do not affect the areas solitude because of its size.

The possibilities for primitive and unconfined recreation in the unit are diverse and range from passive activities to those requiring much physical exertion and endurance. The opportunities for trapping and hunting are widespread. The opportunity for hunting deer and antelope exists in the unit, although the quality of deer hunting is greater because the topography and vegetation creates habitat more favorable to deer.

Resources in the unit support passive activities as well. Opportunities for nature study, photography, rockhounding, birdwatching, reflection and contemplation, and sightseeing exist. The colorful and heavily eroded Willwood Formation provides an excellent opportunity for geologic study.

Special Features

Wildlife, visual, and geologic values enhance the wilderness characteristics of the Honeycombs Unit.

Wildlife populations exist in a setting that is less affected by man's activities than on surrounding lands. The exposures of Willwood Formation which provide opportunities to study scenic

AFFECTED ENVIRONMENT - HONEYCOMBS



Scenic erosional patterns are evident in exposures of the Willwood Formation.

erosional patterns. The area is also known to have deposits of large mammalian fossils from the Tertiary Period.

The Honeycombs landscape falls in the “B” quality scenery category with low visual sensitivity resulting in a Class IV management class (BLM Visual Resource Inventory System). Color and topography are major visual features. The soil colors vary from reds, pinks and purples to numerous shades of browns and tans. The badland character of most of the unit, with its abrupt topographic changes, adds to the visual interest of the area.

Other Resource Values

There are no fisheries, forestry resources or known threatened or endangered species in the WSA.

Recreation Resources

Primary use seasons are late spring, early summer and fall. Recreation activities are dispersed throughout the unit. The WSA provides a setting for roaded natural (1,718 acres), semi-primitive nonmotorized (17,010 acres), and semi-primitive motorized (2,181 acres) type recreation activities. Recreation day use levels within the Honeycombs WSA are estimated at 70 percent

occurring in the roaded natural area, 20 percent within the semi-primitive motorized area and 10 percent within the semi-primitive nonmotorized area. The terrain of the area largely precludes most vehicle use off of established vehicle trails located along the unit's boundary.

Most visitor use is associated with hunting (deer and antelope), sightseeing and exploring the badlands, but rockhounding and looking for fossils are also popular activities. Existing low use levels and highly dispersed use patterns have made it impractical to attempt to collect use data within the unit, but present use is estimated at less than 500 visitor days per year. No developed recreation facilities exist within the WSA.

Cultural Resources

Archeological site density is unknown, however, based on current inventory data it may be predicted that aboriginal camps and lithic scatters could be found on low ridges and terraces within approximately 200 meters of drainages.

Wildlife Resources

The WSA provides wildlife habitat for 20 to 30 elk, 100 mule deer, and 200 to 300 pronghorn antelope during year-round and crucial winter periods. More than 100 sage grouse have been observed utilizing the WSA as crucial winter habitat. Golden eagles also occupy the WSA on a yearlong basis.

AFFECTED ENVIRONMENT - HONEYCOMBS

Wetlands

Six miles of intermittent riverine wetlands bordered by cottonwood dominated riparian zones exist along Cottonwood and East Fork of Nowater Creeks. About 15 stock water reservoirs with associated wetland habitat exist in the WSA. Wetland habitat consists of linear riparian vegetation corridors averaging approximately 100 feet in width, and are considered the most important habitat within the WSA. Existing wetland habitat condition is fair and shows a downward trend.

Soil Resources

The soils are very shallow clay loams, loams and sandy loams with exposed shales and sandstones in the badlands and moderately deep to very deep stratified clayey, silty and sandy loams on the floodplain. These soils are well drained, high in salinity, very low in organic contents, and very low in soil productivity. Runoff is very rapid in the badlands and rapid on the floodplain. The water erosion hazard is high throughout the area, but actual soil losses through erosion are unknown. Soil loss tolerance in the badland areas is less than 1 ton per acre per year and on the floodplain is less than 3 tons. Rehabilitation potential of the badland areas is low because of limited productivity, high erodibility and runoff, and very low loss tolerance. Also the complexity of the unique badland landscape

places severe limits on landscape restructuring. In the floodplain the potential is moderate, limited mostly by high erodibility and low productivity.

The Wilderness Enhancement Alternative would add mostly similar badland areas.

Land Ownership and Use

The WSA contains 21,000 acres of public land. The majority of surface and mineral estate of public lands within the area are owned by the United States and are administered by the BLM. The surface estate in Tract 39, T. 46 N, R. 89 W. (260 acres) is owned by the United States, but the mineral estate is owned by the state of Wyoming. Most of the land surrounding the area is in federal ownership.

Access in the form of rights-of-way across any lands in the WSA has not been authorized nor is it anticipated that it will be required. Two private land parcels each front about 1.5 miles of the WSA on the north and the east boundaries.

Three state land parcels front on the area to make part of the boundary. One parcel of state land makes about .5 mile of the extreme northern boundary. Another on the southwest boundary is nearly surrounded by the area making almost 4 miles of state boundary frontage. The other state parcel makes about 1.5 mile of frontage on the southeastern boundary. Access to these state and private lands does not require crossing any of the WSA.



Most vegetation is found in drainage bottoms.

AFFECTED ENVIRONMENT - HONEYCOMBS

The Wilderness Enhancement Alternative would require the acquisition of two parcels of state land increasing the size of the area. The state land nearly surrounded by the All Wilderness Alternative would be included. Both the mineral estate and surface estate would have to be acquired. Access to land adjoining the adjusted boundary does not require crossing any lands in the WSA.

Mineral Resources

The WSA is considered by Worland District mineral specialists to have high potential for the discovery of oil and gas, and moderate potential for the discovery of coal deposits. This is based on the proximity of the Cottonwood Creek and the Bud Kimball Known Geological Structures (KGSs), the presence of a nearby pending coal lease application (W-77322), four adjacent historic underground coal mines, and the presence of coal seams encountered by a BLM drilling program at two adjacent locations (see Map 17). It is estimated that the actual probability of developing any of these coal deposits at this time is low.

Considerable oil and gas interest is demonstrated by 20 post-FLPMA leases representing 6,018 acres and five pre-FLPMA leases representing 2,244 acres within the WSA. Pre-FLPMA leases constitute a valid existing right, which would allow development regardless of whether the development would impair wilderness character. Three test wells are located within the WSA and 21 test wells drilled within 3 miles outside of the WSA. These wells include two dry holes and one show of oil in the WSA; and one abandoned producer outside the WSA (see Map 16).

The southeast boundary of the Cottonwood Creek KGS lies 2 miles to the northwest of the WSA. This KGS contains a major hydrocarbon accumulation from which more than 31 million barrels of oil has been produced. A portion of the Bud Kimball KGS lies within 500 feet of the southeast boundary of the WSA (see Map 16). This structure has produced 3,450 barrels of oil.

The Sand Creek field now abandoned has produced a total 1.5 million barrels of oil and 12 billion cubic feet of gas, 3 miles west of the WSA.

Reservoir characteristics in the northeastern portion of the WSA indicate potential for domal accumulations of oil in Tensleep Sandstone, marginal to the Cottonwood Creek Field.

Drilling history information from within the Big Horn Basin was analyzed in conjunction with the

WSAs high mineral potential in an effort to predict if existing oil and gas leases within the WSA would be explored or developed.

Data indicates (see Table 7) that in the past eight years (1977-1984) 0.005 exploratory wells per square mile have been drilled each year. This is only a statistical average. During the same eight year interval the success rate was 15 percent.

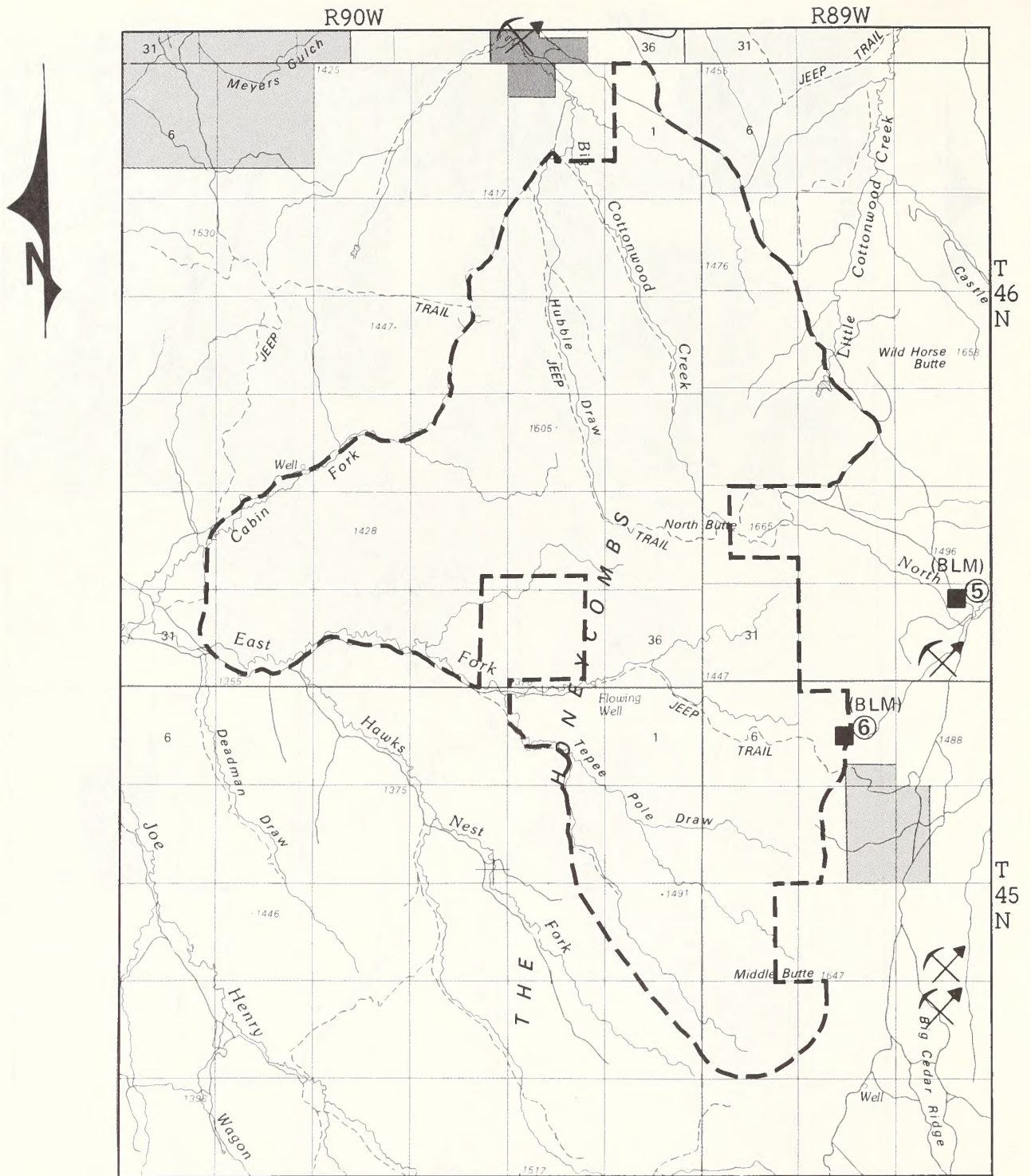
This data may be extrapolated to indicate that in the next 50 years statistically 8.2 exploratory wells, may be drilled in an area the size of the Honeycombs WSA.

The Wilderness Enhancement Alternative includes four state of Wyoming oil and gas leases. These leases are schedule to expire between November 1, 1987 through April 1, 1990. The potential for the discovery of oil and gas on these lands which would be acquired under the Wilderness Enhancement Alternative is also considered to be high. No coal deposits or outcrops lie within Wilderness Enhancement Alternative lands, and its potential is considered to be low for the discovery of coal resources.

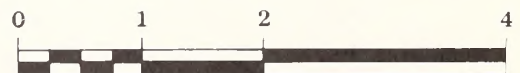
The Honeycombs WSA is also considered to have moderate potential for the discovery of titanium deposits (a mineral of critical and strategic national concern). The largest titaniferous sandstone deposit in Wyoming is located about 3 miles southeast of the WSA (see Map 18). It occurs in northwest-southeast trending paleo-shoreline placer deposits in the Cretaceous Mesaverde Formation. Similar titaniferous sandstone deposits are suspected in the WSA along the northwest-southeast trend. Anomalous Mesaverde sample results in the WSA (SW¼SE¼, Section 20, and SE¼SE¼, Section 35, T. 46 N., R. 90 W.) show geochemical similarities with the titaniferous deposits to the southeast. Titanium deposits are important but are currently more economical to mine elsewhere due to abundance and accessibility. Existing information projects these mineral deposits to be of little economic interest. The WSA lands do not contain any mining claims.

The lands to be acquired under the Wilderness Enhancement Alternative lie along the same titaniferous sandstone trend as the known deposit to the southeast of the WSA. These lands are considered to have low to moderate mineral potential.

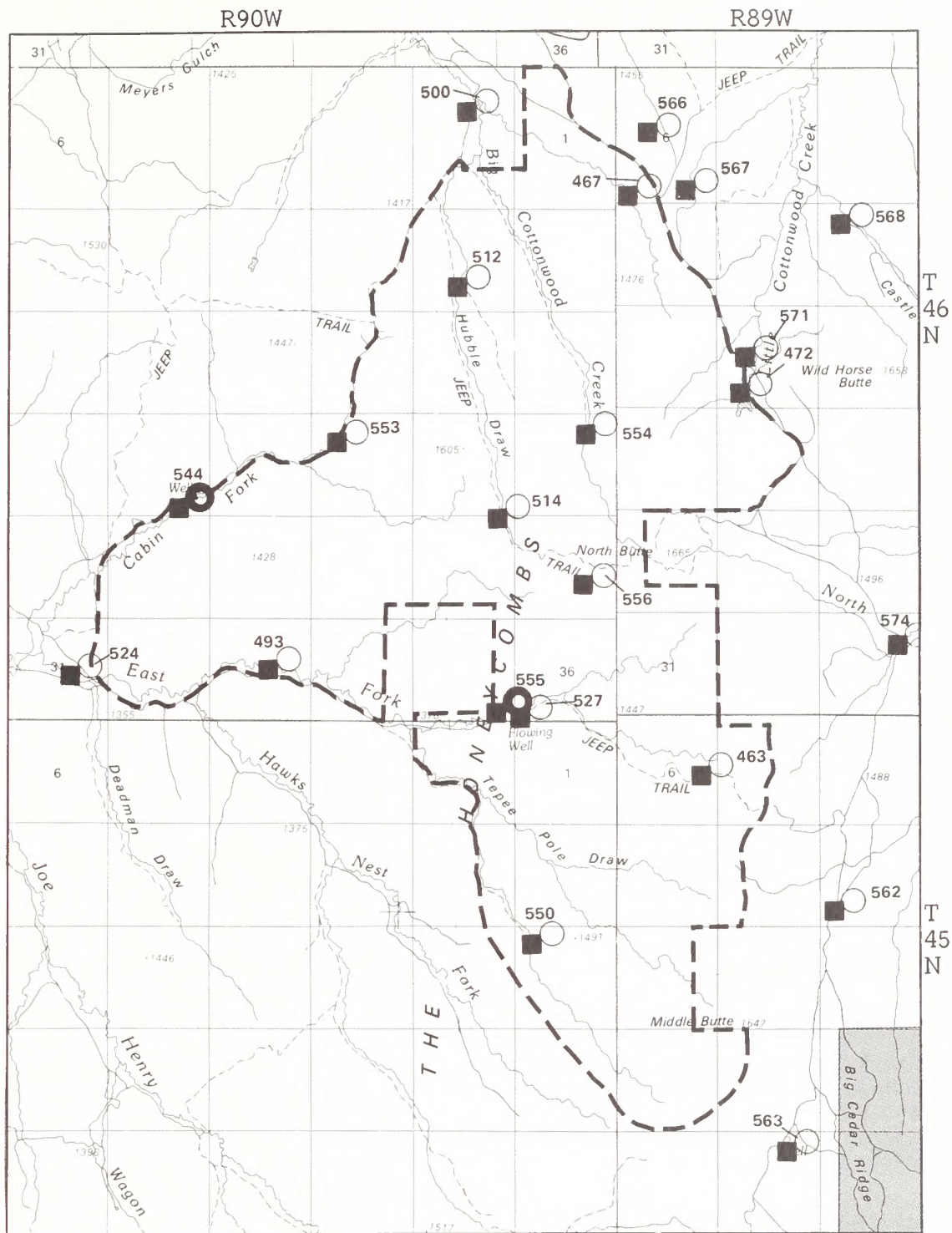
There are no recognized salable mineral values in or adjacent to the WSA or in the Wilderness Enhancement Alternative lands. The potential for salable minerals in the WSA is low.







-  Coal Bearing FM (Eagle FM)
-  Coal Lease Application
-  Historic Mine
-  BLM Coal Recon Drill Hole
-  Wilderness Study Area Boundary



Map 17
HONEYCOMBS WSA (WY-010-221)
 Leasable Mineral Potential (Coal)



-  Geochemical Sample Point
[Metallic, Non-Metallic Minerals]
-  Outer Ring Indicates Anomalous Mineralization
-  Titaniferous Sandstone Deposits
-  Wilderness Study Area Boundary



Map 18
HONEYCOMBS WSA (WY-010-221)
Locatable and Salable Mineral Potential

AFFECTED ENVIRONMENT - HONEYCOMBS

TABLE 7
OIL AND GAS EXPLORATION ACTIVITY
IN THE BIG HORN BASIN

Year	Total Applications ¹	Total Exploratory Wells Drilled ²	Total Discoveries ²
1977	186	31 (Actual)	6
1978	223	41 (Actual)	5
1979	187	32 (Actual)	3
1980	290	28 (Actual)	5
1981	230	35 (Actual)	8
1982	210	41 (Actual)	10
1983	223	34 (Actual)	6
1984	230	59 (Actual)	1
1985	165 ³	29 (Estimated)	2 ³
Total		330	46

Note:

$\frac{330 \text{ exploratory wells}}{(7,800 \text{ square miles}) \times (9 \text{ years})} = .0047 \text{ exploratory wells/square mile/year}$

$\frac{46 \text{ discoveries}}{330 \text{ exploratory wells}} = 13.9\% \text{ success rate}$

¹ Wyoming Oil and Gas Conservation Commission except 1985

² American Association of Petroleum Geologists

³ 1985 Data from Petroleum Information Corporation

Paleontologic Resources

Bown (1980) mapped and investigated the lands in the Honeycombs WSA. He discovered a number of significant vertebrate mammalian fossils which established the area's high paleontologic resource potential. Periodic investigations have been conducted in and adjacent to the WSA by major academic institutions.

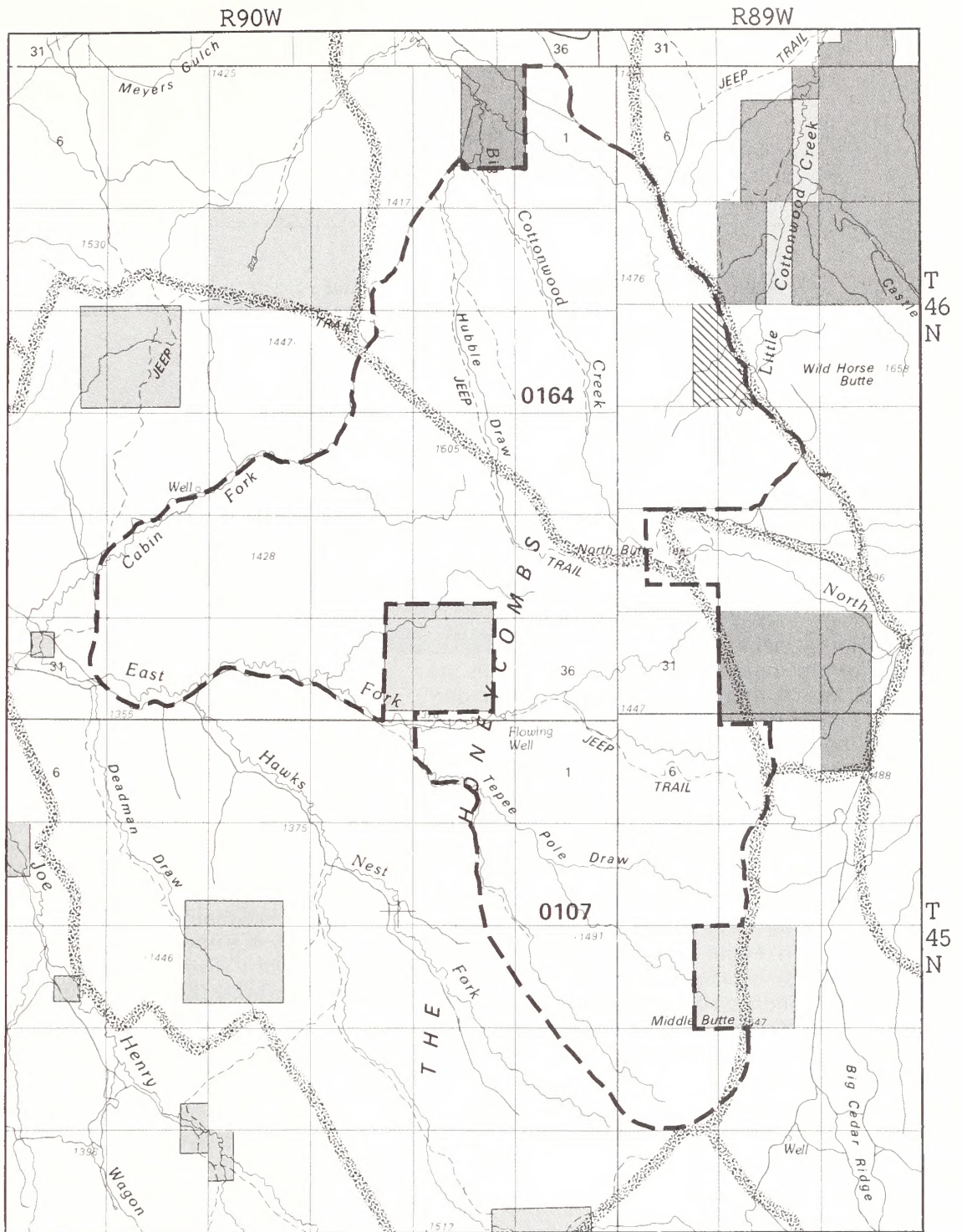
Grazing Resources

The Honeycombs WSA includes portion of two grazing allotments. The actual licensed use in the Cottonwood-North Butte Allotment 0164 has been about 28 percent less than the adjudicated use due to a temporary suspension of 171 AUMs in the allotment (see Table 8). The distribution of livestock use in these allotments is limited by the rough terrain and limited water sources. Most of the grazing use occurs in the drainages and near water. The Honeycombs WSA is highly dissected and makes livestock management and distribution very difficult.

The Honeycombs 0107 and Cottonwood-North Butte 0164 allotments have been initially classified as "I" category allotments. These allotments have potential for improvement in ecological range condition through improved control and management of livestock use. An existing AMP will be scheduled for evaluation and/or revision on the Honeycombs Allotment 0107 and actions to improve range condition in the Cottonwood-North Butte Allotment 0164 will be taken.

Any range projects proposed in the allotments located in or partly in the Honeycombs WSA would have to help achieve the management objectives for the allotment in a cost effective and environmentally sound manner. There are currently no range improvement projects planned within the WSA or alternative boundaries other than the maintenance/reconstruction of seven existing reservoirs, one well, and approximately 12 miles of fences.

A recent ecological range site mapping effort shows that the ecological range condition in the study area is 45 percent good; 30 percent fair;



-  Federal Surface Ownership (BLM)
-  State Surface Ownership
-  Private Surface Ownership
-  Split Estate Land
-  Wilderness Study Area Boundary
-  Grazing Allotment Boundary

0502 Grazing Allotment Number



AFFECTED ENVIRONMENT - CEDAR MOUNTAIN

TABLE 8
HONEYCOMBS LIVESTOCK GRAZING ALLOCATIONS

Allotment Name	Allotment Number	Season of Use	Class of Livestock	AUMs by Alternative	
				No & All Wilderness	Wilderness Enhancement
Honeycombs	0107	Spring/Winter	Cattle	933	990
Cottonwood-North Butte	0164	Spring/Winter	Cattle	570	586

5 percent poor and 20 percent was classified as rock outcrop.

Water Resources

The Honeycombs WSA receives 7 inches to 10 inches of precipitation annually, primarily in the form of late spring to early summer thunder-showers. Several small ephemeral streams that dissect the WSA serve as the headwaters of two larger ephemeral drainages. The headwaters of the East Fork of Nowater Creek are found in the southern portion of the WSA, while the northward trending Cottonwood Creek drains the northern portions of the WSA.

Flow events are typified by high sediment concentrations which ultimately reach the Bighorn River. High sediment concentrations reduce reservoir storage capacities, create detrimental deposition on land and crops and serve as a transport vehicle for pollutants. Nowater Creek is a major contributor of sediment to the Bighorn River.

Channel sandstones are capable of providing low yielding water wells (5-15 gallons per minute) for stock and wildlife purposes.

Three developed wells border on or exist in the WSA for livestock and wildlife watering purposes. No springs are known to exist in the area.

CEDAR MOUNTAIN

Mandatory Wilderness Characteristics

Size

The Cedar Mountain study unit is located east and northeast of Kirby, Wyoming, along the east

side of the Bighorn River. The study area now consists of 21,570 acres with no private or state inholdings. All subsurface values are held by the United States. The boundaries of the unit conform mainly to roads, private/public property lines and the right-of-way for a natural gas pipeline.

Naturalness

The Cedar Mountain unit is an area of rugged topography characterized by deep, steep-sided drainages flowing north or west toward the Bighorn River. Cedar Mountain is the dominant visual feature of the unit. It is unusual in the vicinity because of its elevation, the vegetation growing on it, and the imposing rock escarpment which forms its southern side. The landscape rises fairly uniformly in a south-southeasterly direction from the Bighorn River to Cedar Mountain. There it drops abruptly, near the south boundary of the unit. An exception of the gradual rise from north to south occurs in the extreme western portion of the unit where bluffs tower above the Bighorn River and deep drainages fall steeply to the river. Elevation in the unit ranges from about 4,200 feet above sea level at the unit's northern edge to 5,500 feet on Cedar Mountain.

Vegetation in the unit consists mainly of sagebrush and grasses. Rabbitbrush is common in drainages, along vehicle routes and around reservoirs. A belt of junipers is also found on Cedar Mountain.

Intrusions on natural qualities within the Cedar Mountain WSA are further described by summarizing man-made features.

Man-made features in the unit consist mainly of bladed seismograph trails. The standard procedure used during the exploration was to use a bulldozer to blade a driving surface into areas of interest. Because of the severe topography over most of the unit, the blading resulted in some

AFFECTED ENVIRONMENT - CEDAR MOUNTAIN



South facing Cedar Mountain escarpment.

significant side-hill cuts, cuts perpendicular to contours, and cuts along straight lines regardless of terrain. The existence of a few of the bladed trails in the unit can be tied to construction of reservoirs and fence lines.

Additionally, two-track trails are found throughout the unit. Most were bladed once to allow access for seismograph activity. They have received no maintenance and little, if any, subsequent use. Erosion is intensified by the steep terrain in the unit and some of these trails are impassable to motor vehicles. The trails visible in the west part of the unit are mostly impassable. Natural revegetation has softened the visual impact of the unused bladed trails as has erosion of some of the more obvious cuts.

Other trails used by recreationists or ranchers have assumed a two-track character. No obvious maintenance has occurred. Erosion has affected the driving surfaces. Vegetation has crept back into the bladed portions except for the tracks compacted by vehicles.

The one two-track road identified during inventory has become the south boundary route and is used by recreationists and ranchers. Maintenance is assumed to have occurred because of the condition of the drainage crossings in Freeman Draw and the dugways of Cedar Mountain. The visibility of other vehicle trails in the unit is reduced because of natural screening, including topography, and the effects of erosion.

Five small reservoirs are located in the unit. They are generally well hidden at the bottom of drainages and have limited visibility. Fences running north-south serve as a grazing allotment boundary. A few short segments of fence form unit boundaries or are near boundaries in the southeast. Two water wells exist. One is on the boundary of the unit in Freeman Draw. The second is at the end of a short trail road in the northwestern part of the unit. Two abandoned oil and gas wells have been reclaimed. Both sites are relatively obscure, and have little effect on the character of the landscape.

Although bladed trails influence the area's naturalness, their presence is mitigated to an extent by topographic screening, by the unusable condition of about half the trails in the segment, and by the natural rehabilitation caused by erosion and revegetation. The unit's western half has marginal apparent naturalness, with good potential for a return to a higher degree of naturalness. The apparent naturalness of the eastern half of the unit is moderate.

Outstanding Opportunities

The unit's size and topography provide an outstanding opportunity for solitude.

The unit is conducive to seclusion because it is essentially badlands. The steep-sided drainages limit one's awareness to a small, immediate area.

AFFECTED ENVIRONMENT - CEDAR MOUNTAIN

The topography and vegetation act as a screen to reduce the possibility of seeing into more than the adjacent drainages and help maintain the feeling of seclusion.

The size of the unit and the overall lack of man-made constraints are conducive to unconfined recreation activities, naturally occurring physical confinements do exist (the bluffs above the Bighorn River, the Cedar Mountain escarpment, the generally rugged terrain) but they enhance the recreation experience by providing challenge and diversity. The area provides opportunities for backpacking, primitive camping, hiking, horse-back riding, trapping, hunting for deer, upland birds, small game, and predators. Opportunities for nontechnical rock climbing and rappelling are limited mainly to the Cedar Mountain escarpment. Snowshoeing and cross-country skiing has occurred in the winter when there is adequate snowfall.

Special Features

Visual, wildlife, and geologic values enhance the wilderness characteristics of the Cedar Mountain Unit.

The unit has "B" quality scenery category with low to high visual sensitivity resulting in Class II and IV management classes (BLM, Visual Resource Inventory System). Greater consi-

deration for the protection of visual features is evident in Class II areas. Soil, rock, and vegetation color, and topography are major visual features. The abrupt topographic changes characteristic of badlands add to the visual interest of the area.

Petrified wood and reptilian fossils are found in the Lance and Meeteetse formations in the southern end of the unit. Mammalian fossils are found in the Fort Union Formation north of Cedar Mountain.

Other Resource Values

Recreation Resources

Most recreation use is vehicle based and occurs near the boundaries of the WSA. Rough terrain largely precludes vehicle use off of these boundary roads. As with the Honeycombs unit, high temperatures in late summer discourage visit during that period, so most activity takes place in spring and fall months.

A unique boating experience can be obtained in the Cedar Mountain area due to approximately 1.5 mile of the WSA being immediately adjacent to the Bighorn River. Public land river tracts along the Bighorn River within the Big Horn Basin are rare. This river frontage provides opportunities for fishing and other water oriented recreation activities.



Juniper belt located on Cedar Mountain.

AFFECTED ENVIRONMENT - CEDAR MOUNTAIN

Excellent opportunities exist for hunting mule deer and chukars, sightseeing, hiking, horseback riding and trapping. The WSA offers either Roded Natural (5 acres), Semi-primitive Nonmotorized (17,331 acres) or Semi-primitive Motorized (4,234 acres) type recreation opportunities. Recreation day use levels within the Cedar Mountain WSA are estimated at 0 percent occurring within the roded natural area (due to its small size), 60 percent within the semi-primitive motorized area and 40 percent within the semi-primitive nonmotorized area. (Appendix D has a description of ROS classes).

Low use levels and highly dispersed use patterns have made it impractical to collect use data for the WSA, but present use levels are estimated at less than 500 visitor days per year.

No developed recreation facilities exist within the WSA.

The lands that would be added to the WSA under the Wilderness Enhancement Alternative offer basically the same opportunities and receive essentially the same recreation use as areas within the WSA.

Cultural Resources

Archeological site density is unknown. However, east of the WSA are high densities of lithic scatters, camps, and stone circle sites located on terrain similar to that of the WSA.

Wildlife Resources

The Cedar Mountain WSA provides crucial and yearlong habitat for 200 to 300 mule deer and habitat for less than 300 grey and chukar partridge. As many as 15 bobcats also use the area.

Prairie falcons have been observed nesting on the southern end of the WSA. Golden eagles use the entire WSA for nesting and hunting. Bald eagles use the western edge of the WSA as hunting territory in the winter. It is likely that the riparian habitat in this area will serve as nesting and/or broodrearing habitat for nesting resident bald eagles in the near future.

Wetlands

The area contains about 3 miles of intermittent stream channel bordered by a cottonwood dominated riparian zone and five stock water reservoir sites, most of which are nonfunctional. The 1.5 mile of WSA boundary located along the Bighorn River constitutes the most important wetland habitat within the WSA.

Forest Resources

About 1,000 to 1,500 acres of Juniper woodlands have been identified within the WSA. Currently, these woodlands are not being utilized for commodity purposes.



Cedar Mountain WSA once bladed trail, the most common man-made feature.

AFFECTED ENVIRONMENT - CEDAR MOUNTAIN

Soil Resources

The soils are very shallow to moderately deep sandy loams, loams and clay loams with common sandstone and shale outcrops. Many soils have high rock content. Soils are also well drained, moderate to high in salinity, low in organic content, and very low to low in soil productivity. Runoff throughout the area is rapid and water erosion hazard is high. Soil loss tolerance is less than 1 ton per acre per year and less than 2 tons on the shallow and moderately deep soils, respectively. Rehabilitation potential is limited by soil depth, high erodibility and mostly very low soil productivity. The complexity of the landscape also places limits on landscape restructuring.

Land Ownership and Use

Both the surface and mineral estate of all 21,570 acres of public land are owned by the United States and administered by the BLM. A public water reserve is located in T. 45 N., R. 94 W., Section 21.

The lands to be acquired under the Wilderness Enhancement Alternative are all state surface and mineral estate. Access to the land adjoining the revised boundary produced by this adjustment would not be affected.

Mineral Resources

Proximity of the Neiber Known Geologic Structure just east of the WSA suggests high potential for the discovery of oil and gas deposits. There are 23 post-FLPMA oil and gas leases representing 18,690 acres and three pre-FLPMA oil and gas leases representing 1,520 acres within the WSA. Three wells have been drilled within the Cedar Mountain WSA, all were dry with only shows of oil and gas. Seven dry wells have been drilled within 3 miles of the WSA, most with oil and/or gas shows (see Map 21). The closest producing oil well lies 2.75 miles east of the northeast boundary of the WSA and marks the western boundary of the Neiber field. An exploratory oil and gas unit abuts the WSA in T. 45 N., R. 93 W., Section 16.

Intermittent coal leases, prospecting and mining operations have taken place since the 1920s (see Map 22). Approximately half the lands involved in coal prospecting permit W-31251 lie within the WSA.

The depth of the coal bed under the southern portion of the WSA is estimated to range between

200 and 900 feet, increasing in a northerly direction. Quality estimates of this coal are expected to be similar to those found in Gebo and Crosby ranked subbituminous coal, containing 8,000 to 13,000 BTU heat value, with between 8 to 18 percent ash content.

The Wilderness Enhancement Alternative identifies a portion of state of Wyoming land located in T. 45 N., R. 93 W., Section 16 and T. 45 N., R. 94 W., Tract 43, that if acquired would be added to the designated area. All of these state lands are leased for minerals.

The WSA has low potential for both locatable and salable minerals. There are no mining claims currently located on or adjacent to the WSA lands and there is no record of historic mining for locatable or salable minerals in or adjacent to the WSA. The lands involved in the Wilderness Enhancement Alternative have the same low potential for locatable and salable minerals.

Grazing Resources

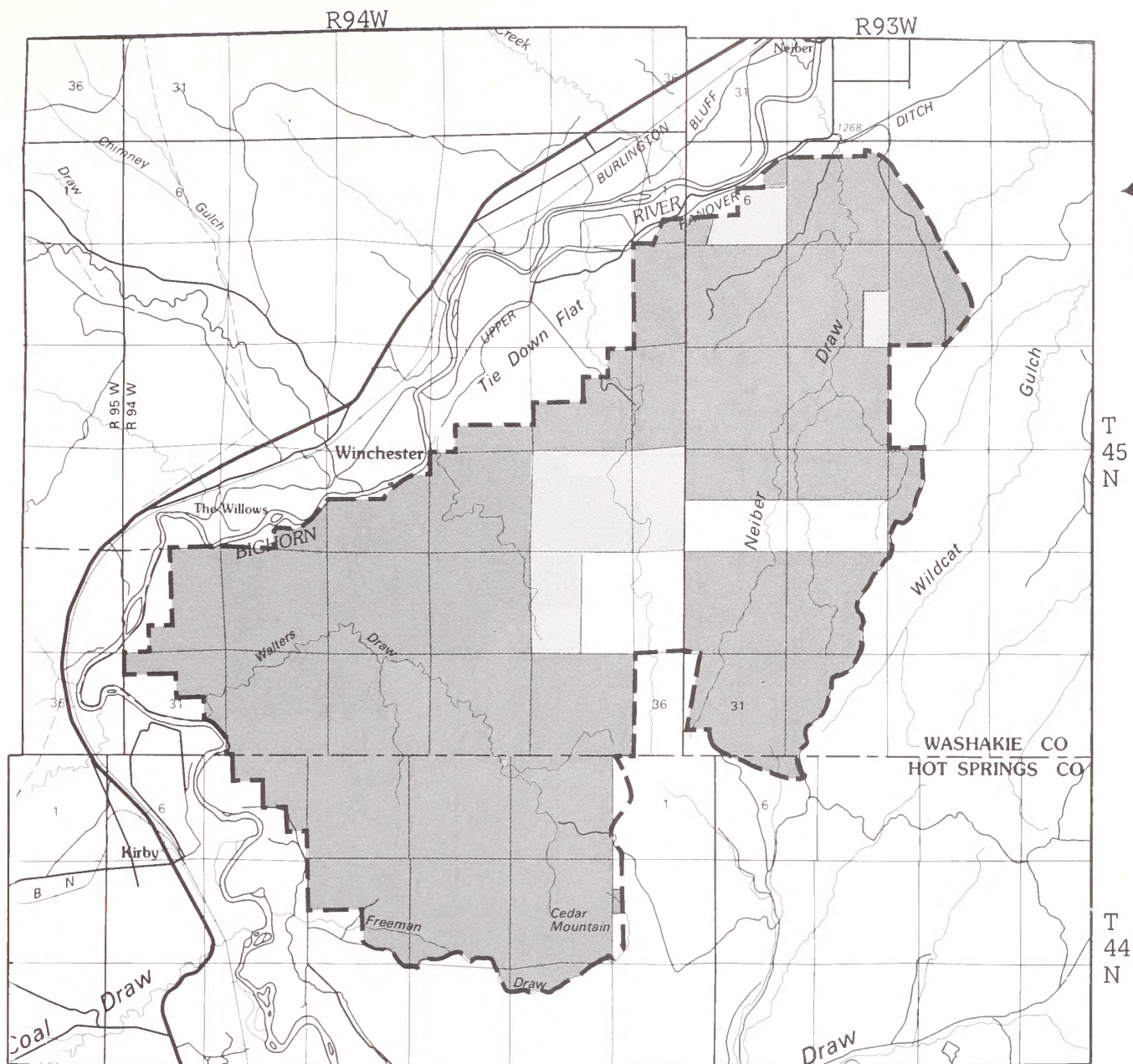
The Cedar Mountain WSA includes portions of five grazing allotments.

Total non-use of allotment 0159 has occurred for the past several years and about 45 percent of allotment 0048 has been carried as non-use during the past 3 years.

Livestock grazing occurs in the drainages and near available water with only light use on the ridges and areas with little or no water. Access for grazing purposes is available on the boundary roads and on existing vehicle trails. Access to five critical livestock reservoirs, two wells and approximately seven miles of fence is required for periodic maintenance.

The Neiber and South Lucerne Group allotments are classified initially as I category allotments. These two allotments have potential for improvement in ecological range condition through improved control and management of livestock use. Although there is an existing AMP on the South Lucerne Group Allotment it has never been fully implemented. Tie Down, Cedar Mountain and Freeman Draw are all "C" category allotments with low potential. The potential for forage improvement is limited by low annual precipitation and steep slopes.

The current ecological range condition is 50 percent good condition, 20 percent fair, and 5 percent poor; 25 percent was classified as rock outcrop or woodland unsuitable for livestock grazing.

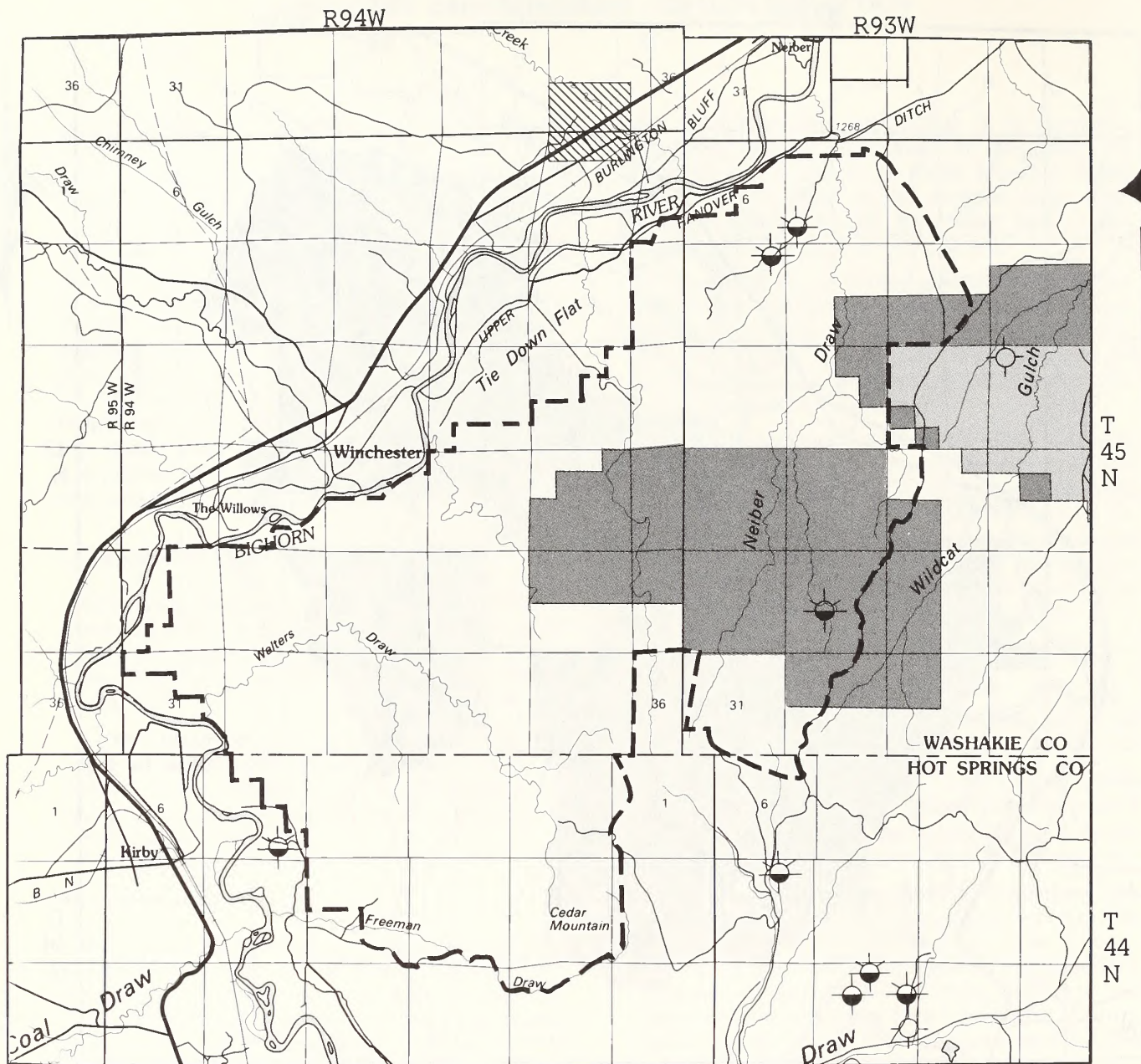


- Pre-FLPMA Lease
- Post-FLMPA Lease
- Wilderness Study Area Boundary

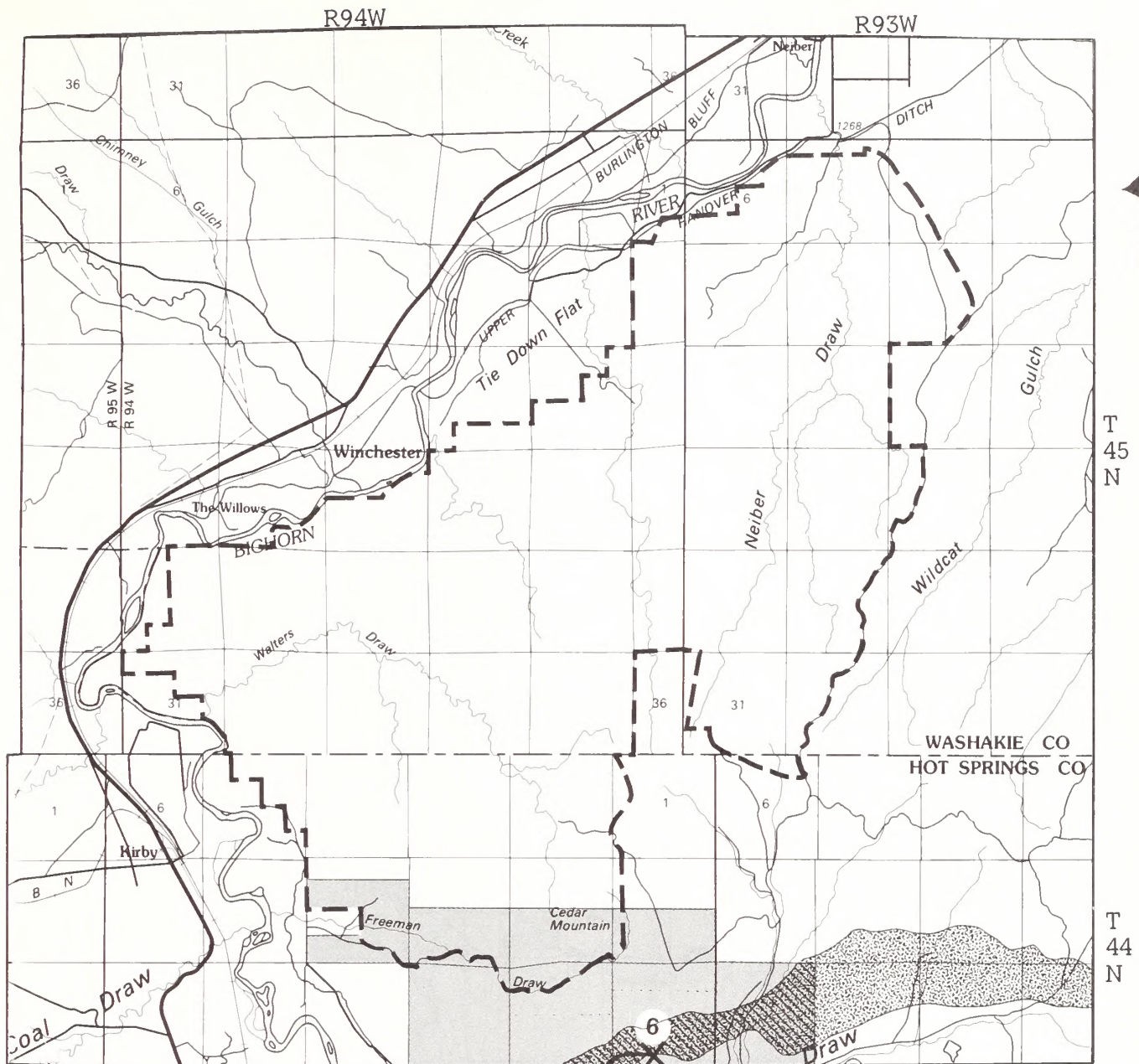
NOTE: Remainder of Federal Land within WSA not leased








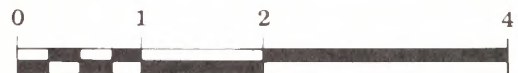
Map 20
CEDAR MOUNTAIN WSA (WY-010-222)
Oil and Gas Lease Status



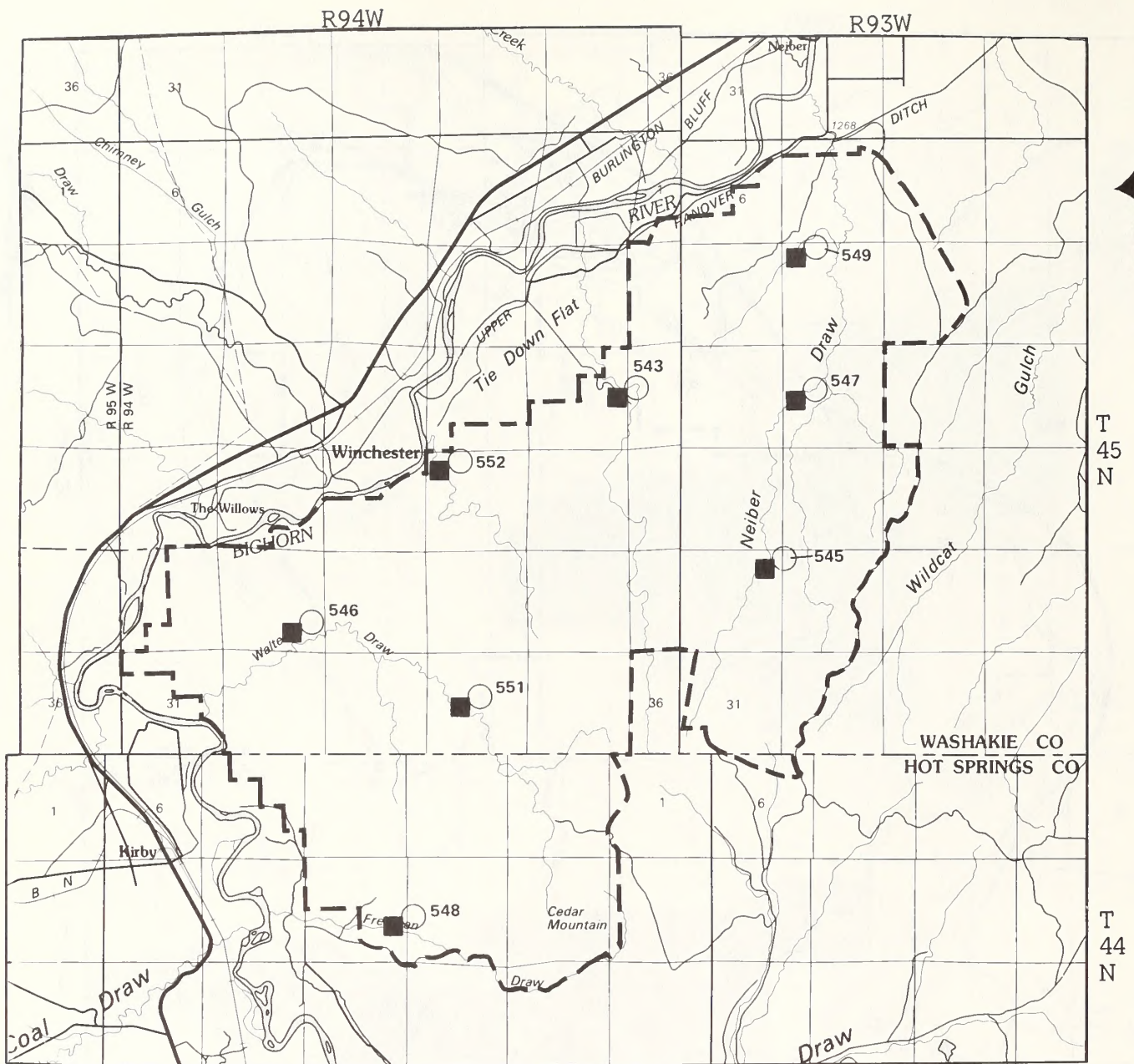
Map 21
CEDAR MOUNTAIN WSA (WY-010-222)
Leasable Mineral Potential (Oil and Gas)





-  Coal Prospecting Permit Area
-  Coal Bearing FM (Eagle FM)
-  Coal Bearing FM W/H Underground Mines
-  Coal Bed Outcrop (Number Shows Thickness in Ft.)
-  Wilderness Study Area Boundary



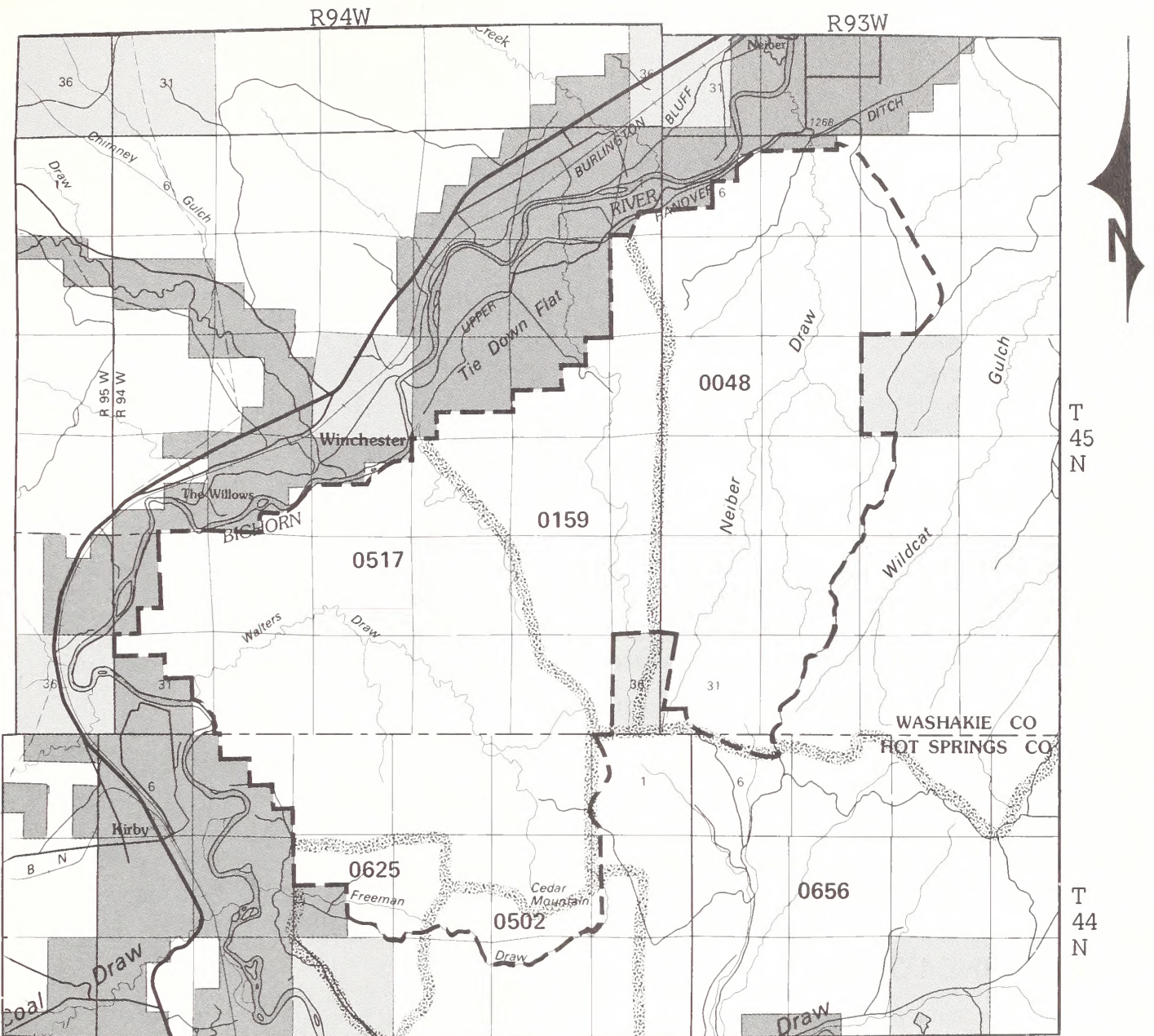
Map 22
CEDAR MOUNTAIN WSA (WY-010-222)
Leasable Mineral Potential (Coal)



- 
 Geochemical Sample Point
 [Metallic, Non-Metallic Minerals]
- 
 Wilderness Study Area Boundary



Map 23
CEDAR MOUNTAIN WSA (WY-010-222)
 Locatable and Salable Mineral Potential



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Grazing Allotment Boundary
- 0084** Grazing Allotment Number



AFFECTED ENVIRONMENT - MEDICINE LODGE

TABLE 9
CEDAR MOUNTAIN LIVESTOCK GRAZING ALLOCATIONS

Allotment Name	Allotment Number	Season of Use	Class of Livestock	AUMs by Alternative	
				No & All Wilderness	Wilderness Enhancement
Neiber	0048	Winter/Spring	Sheep/Cattle	825	845
Tie Down	0159	Spring	Cattle	93	109
South Lucerne Group	0502	Spring/Summer	Cattle/Horses	57	57
Cedar Mountain	0517	Spring/Summer	Cattle	690	690
Freeman Draw	0625	Spring/Summer	Cattle	86	86

Water Resources

The Cedar Mountain WSA receives 6 to 9 inches of precipitation annually, primarily in the form of late spring and early summer thundershowers. The WSA is dissected by small, ephemeral drainages which flow east and north to the Bighorn River. The topography is typical of sediment producing semi-arid basin floors.

Groundwater yields are suitable for livestock and wildlife. Two existing wells within the WSA have obtained water between 100 to 300 feet. One public water reserve consisting of 66 acres is within the WSA boundary.

A spectacular canyon with walls towering a thousand feet above the canyon floor is the result of geologic stratification, of faulting and cracking of the strata, and of downcutting by Medicine Lodge Creek. The canyon runs southwesterly from the Bighorn National Forest boundary for

MEDICINE LODGE

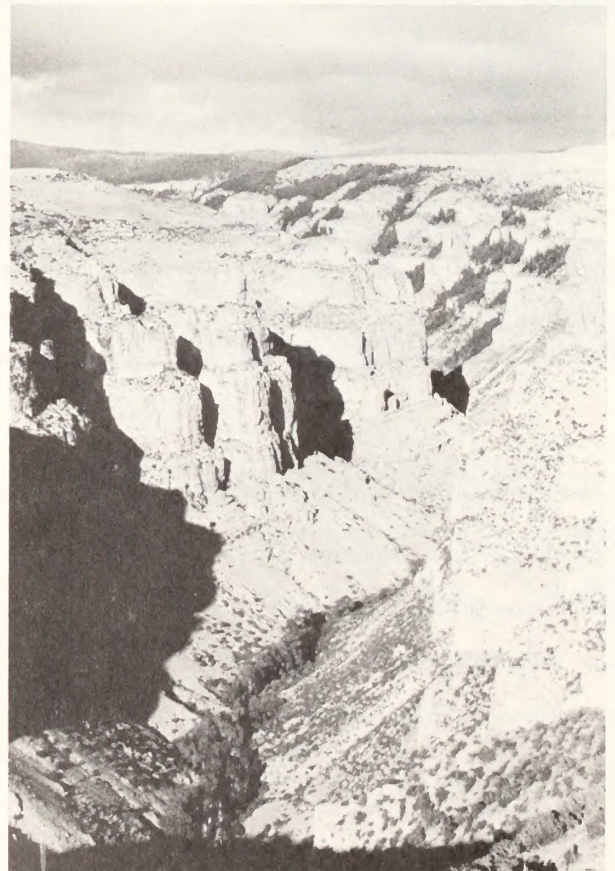
Mandatory Wilderness Characteristics

Size

Medicine Lodge unit contains 7,740 acres of public land with no state or private inholdings. The WSA does not depend on other lands for size integrity.

Naturalness

This unit, ranging in elevation from 8,200 feet to 5,100 feet, is located on the west slope of the Bighorn Mountains. The average elevation difference between the canyon's rim and Medicine Lodge Creek is about 1,000 feet. The unit consists of steeply sloping shrubsteppe and broken rugged areas with shallow canyons and unusual knobby rock outcrops. Medicine Lodge Canyon is the unit's dominate feature.



Medicine Lodge Canyon.

AFFECTED ENVIRONMENT - MEDICINE LODGE



Steeply sloping shrubsteppe occurs above knobby canyon rock outcrops.

about 2 miles. It then turns westerly for an additional 2 miles where it turns sharply south for about 2.5 miles to the mouth of the canyon north of the old Taylor Ranch headquarters. The deepest and most rugged portions of the canyon are in the central (east-west) segment.

A major tributary of Medicine Lodge Creek is Captain Jack Creek, which has formed its own canyon. Captain Jack originates on the Bighorn National Forest and trends westerly until it intersects Medicine Lodge Creek. Near the lower end, the Captain Jack drainage displays some of the canyon walls and rock strata that characterize Medicine Lodge Canyon.

The portion of the unit in the steeply sloping shrubsteppe found north of Medicine Lodge Canyon is dominated by grasses and sagebrush. One substantial drainage and several smaller tributaries drain this area and flow southwesterly toward Medicine Lodge Canyon.

Broken, fairly rugged country occurs south of Medicine Lodge Canyon. It is characterized by outcrops of the Tensleep Sandstone which form shallow canyons and knobs of unusual shapes. A dense belt of junipers covers most of this area.

Vegetation is diverse along Medicine Lodge Creek and is similar to that in other canyons in the area. The overstory in the upper reaches of the creek consists of conifers and aspen. Cottonwood provides the overstory in the lower reaches. The understory includes chokecherry, gooseberry, wild rose, and skurikbush sumac.

Warm ledges and slopes in the canyon (mainly south-facing, but also east-and-west-facing) are vegetated primarily with grasses and mountain mahogany. The mountain mahogany is the dominant vegetation. The cool, north-facing slopes are forested, primarily with Douglas fir and occasionally, limber pine. Mountain mahogany, sagebrush, and grasses are found in open areas of north-facing slopes, depending on characteristics of the particular site.

The canyon's rims and shrubsteppe north of the canyon are vegetated with sagebrush and grasses. Sagebrush dominates in most areas, especially along slopes above drainages.

Intrusions on natural qualities within the Medicine Lodge WSA are further described by summarizing man-made features.

Intrusions in the unit are minimal in terms of density, visual impact, and extent. Vehicle routes in the unit are two-track trails maintained by the passage of vehicle. Those occurring in the shrubsteppe are the most obvious due to lack of screening. Although revegetation helps reduce the visibility of trails. Vehicle routes in the juniper belts are well hidden by vegetation and the impacts of vehicle use of these trails are minimized by the numerous rocky shelves and outcrops. All vehicle routes south of Medicine Lodge Canyon can be considered two-track trails. The trail in Section 4, S $\frac{1}{2}$ N $\frac{1}{2}$, shows no vehicular use. It has been revegetated with sagebrush, grasses, and shrubs. While evidence of blading in the form of a low

AFFECTED ENVIRONMENT - MEDICINE LODGE

side-hill cut exists, it is visually softened by revegetation and erosion. The bladed trail in Section 3, T. 50 N., R. 88 W. continues to be used. The driving surface on the trail from the Cold Springs Road to Captain Jack Creek in Section 3, is in good condition. Original cuts along the trail are revegetated and vegetation has grown back in the center of the driving surface, between the tire tracks. A series of short interconnected trails south of the canyon provide access to the canyon rim, an enclosure, and a segment of a water pipeline. These trails are well screened by the juniper vegetation of the area. The realignment of the Cold Springs Road left evidence of the original road alignment in some places within the unit. These short pieces of old road have been recontoured and revegetated and have essentially returned to a natural condition.

One water development transports water in the study unit. Water flows through a pipe from a spring on a tributary of Captain Jack Creek to a hydraulic pump near the creek. The pipeline continues to the west, following the rim, to water troughs. The pipeline alignment runs generally below the rim on steeply sloping, sagebrush covered slopes. The steep slopes and the vegetation help hide the pipeline for most of its distance. The troughs are screened by trees. A spring or seep in T. 50 N., R. 88 W., Section 3, is fenced to keep livestock out.

Three small reservoirs are located within the upland areas north of the canyon. Dikes on these developments are estimated to be less than 50 feet long by 10 feet high. The catchments are small, and held no water at the time of inventory. Dikes and catchments were well vegetated with grasses and some sagebrush.

Fences are limited to short segments. They are not obtrusive, generally, because most are located in drainages or are screened by vegetation. An enclosure for study purposes is well screened by junipers.

None of the intrusions listed above significantly influence the character of the unit.

Concentrated use by cattle in the upper Captain Jack Drainage has resulted in damage to the channel and banks of Captain Jack Creek. Livestock grazing does not occur in the upper reaches of Medicine Lodge Canyon. Although trails were apparent in the lower reach of the canyon, no impacts to the channel were observed.

The 1968 Captain Jack timber sale (36 acres) occurred in the forested portions of the Captain Jack drainages. The remains of logging activity are evident. However, grasses, shrubs, and new



Riparian vegetation includes dense stands of trees, shrubs and grasses.

growth of Douglas fir have substantially reduced the visual impact of the logging. Slash is decaying and is being covered by vegetation. The visibility of the cut is limited by the steep sides of the Captain Jack drainage.

The intrusions present in the unit individually or as a group are not of a magnitude to cause the exclusion of portions of the unit. Medicine Lodge Canyon has no intrusions and is essentially pristine. The intrusions on the rims and flats above the canyon do not significantly affect the apparent naturalness of the unit.

Outstanding Opportunities

The shrubsteppe is not conducive to solitude. The lack of vegetative and topographic screening is especially evident during heavy use periods.

The juniper belt promotes solitude. The rugged character reduces access and limits numbers of users.

The best opportunity for solitude exists in Medicine Lodge Canyon. Activity on the bottom

AFFECTED ENVIRONMENT - MEDICINE LODGE

of the canyon is removed from activity on the rims. Sight distances are limited by the canyon and vegetation resulting in reduced spheres of awareness.

Limited use enhances the solitude in the canyon. Livestock use is nonexistent in most of the canyon and recreational use of the canyon is extremely limited because of the difficult access. Inhospitable terrain, the lack of trails, thick vegetation along the water courses, and the blockages of fallen timber and boulders is characteristic of each of the three access routes.

The opportunities for solitude are not affected by the size and configuration of the unit. Outside sights and sounds have little effect on solitude. The unit seems to have outstanding opportunities for primitive and unconfined recreation. The preponderance of these outstanding opportunities are associated with Medicine Lodge Canyon. Medicine Lodge Creek is a trout producer of regional importance. Opportunity for fishing appears greatest in the lower reaches of the creek.

Excellent hunting opportunities exist throughout the unit. The juniper belt provides cover and feed for deer. The shrubsteppe areas draw elk in the fall and winter months. Both species are hunted heavily. Opportunities for hunting small game, predators and upland birds exist throughout the unit.

The quality of recreation in Medicine Lodge Canyon depends on use levels. The capacities of the remainder of the unit are less vulnerable, but nevertheless provide the basis for a quality wilderness experience.

Special Features

Nearly the whole unit is crucial elk winter range. The area is cooperatively managed by the Wyoming Game and Fish Department and the BLM as winter and crucial winter range for elk. The extreme northern parts of the unit serve as seasonal movement routes to the area around Black Butte. The northern parts serve also as access to parturition areas south of Black Butte on the Bighorn National Forest. Crucial deer winter range exists just to the east of the unit. The entire unit serves as deer winter range. Bighorn sheep, which were reintroduced in the Paint Rock Canyon area several years ago, may use parts of the Medicine Lodge WSA as summer range. The unit also provides habitat for sage and blue grouse, chukars, raptors, and predators.

Outstanding ecological values include vegetative and wildlife communities which are essentially unaffected by man. No grazing or man-made developments have been undertaken in the canyon, above the lower end of the canyon.

The exposed geologic features provide the opportunity to study the geologic history of the area. The Madison Formation is a storehouse of fossils such as brachiopods, corals, bryozoans, and crinoid stems.

Medicine Lodge Canyon rates extremely high in scenic value resulting in "A" quality scenery based on the rich color combinations, the vertical or nearly vertical cliffs, spires and formations; the variation in form, pattern, texture, and type of vegetation; the presence of free-flowing, cascading water; the freedom from undesirable or discordant sights and sounds resulting from man's activities; and its relative uniqueness in the region. The WSA falls in a Class II management class due to medium sensitivity levels with "A" quality scenery.

The supplemental values inherent in the unit definitely enhance the wilderness values of the unit.

Other Resource Values

Recreation Resources

Recreation use is dispersed and primarily associated with Medicine Lodge Canyon which provides a setting for semi-primitive nonmotorized recreation activities. Most recreation use revolves around this primitive land character. Both deer and elk are hunted heavily.

The Medicine Lodge WSA offers roaded natural (1,467 acres), semi-primitive motorized (2,493 acres), and semi-primitive nonmotorized (3,780 acres) types recreation opportunities. Recreation day use levels are estimated at 50 percent occurring within the roaded natural area, 25 percent within the semi-primitive motorized area and 25 percent within the semi-primitive nonmotorized area. (Appendix D has a description of ROS classes). Overall, visitor use is estimated to occur at a moderate level (500-1,000 visitor days per year). Snow conditions on access roads restrict most visitor use from mid-December through April.

Medicine Lodge Creek is a trout producer of regional importance especially in the lower

AFFECTED ENVIRONMENT - MEDICINE LODGE

reaches of the creek. The trout population supports about 15 fisherman days per mile each year.

Other recreation activities occurring in the area include photography, geologic and zoologic sightseeing, hiking, climbing, backpacking, and passive activities like contemplation and reflection.

Three commercial, day use, outfitter operations may utilize the Medicine Lodge WSA during the big game hunting season. This use is permitted under a recreation use permit. No overnight camps are located in the unit for outfitting purposes.

No developed recreation facilities exist within the WSA. Approximately one mile downstream from the WSA is a developed campground, picnic site and popular fishing area managed by the State of Wyoming. The lands to be added in the Medicine Lodge WSA under the Wilderness Enhancement Alternative consist of uplands that are very similar to the upland within the WSA. These uplands receive essentially the same recreation use as the upland areas within the existing WSA.

Cultural Resources

This WSA is expected to contain a great density of sites. Highest densities are expected to be found in locations less than 200 feet from water sources and in juniper/sage vegetation communities. Sites most common to the area include open camps, lithic scatters and lithic procurement sites.

No historic sites are known to exist within the WSA.

Wildlife Resources

The Medicine Lodge WSA supports from 100 to 1,100 elk during fall to spring periods. Several hundred mule deer also inhabit the area in winter, fall and spring periods with a few resident deer inhabiting the area during summer. The WSA is cooperatively managed as part of a game management unit (Medicine Lodge Habitat Management Unit) by the Wyoming Game and Fish Department and the BLM due to crucial winter range for elk.

Several hundred chukars, 20 to 30 grey partridge and 10 to 15 turkeys also inhabit the WSA. Blue grouse occur in the eastern edge of the WSA while sage grouse occur throughout. One sage grouse strutting ground is documented in the WSA. Nesting and yearlong habitat is also used by grouse.

One or two mountain lions and four or five bobcats occupy the WSA on a year-round basis. Black bears also occur in this WSA.

Prairie falcons and golden eagles nest and hunt in the WSA. Golden eagles use the area year-round. Although no nests are known to occur in the WSA, approximately 10 to 20 bald eagles have used riparian areas during the winter for roosting.

Fisheries

The WSA contains about 3 miles of clear, clean fisheries waters occupied by brown and rainbow trout. Brown trout predominate, especially in the lower reach. The brown and rainbow trout populations were estimated at 2,203 and 107 fish per mile respectively. The Wyoming Game and Fish Department classified Medicine Lodge Creek as a Class 3 stream (important trout water/fishery of regional importance). It has intermediate access and productivity and like Trapper Creek, has outstanding aesthetics.

Wetlands

The channels and riparian zones along 5.9 miles of Medicine Lodge Creek, 2.9 miles of Captain Jack Creek, and .2 miles of stream in Allen Draw are mostly in near pristine condition and have been nominated as unique natural areas (Evert et al., 1985). Only the upper 1.5 miles of Captain Jack Creek which is freely accessible by livestock, has had significant degradation caused by grazing.

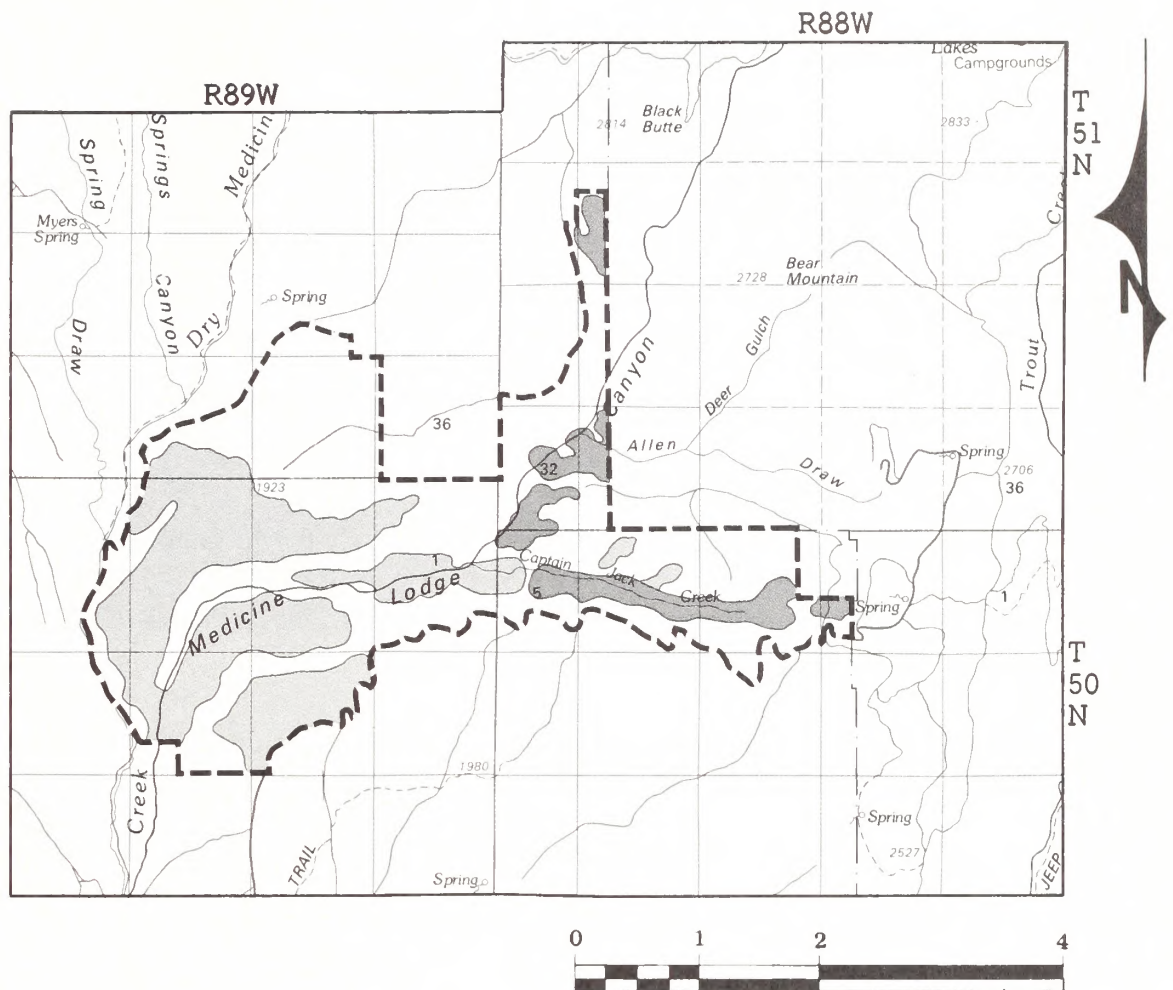
The channels, except in upper Captain Jack, are composed of boulders and gravel. The riparian vegetation includes thick stands of cottonwood, aspen, chokecherries, currants, gooseberries, and numerous shrubs and grasses.

Wetland habitat consists of linear riparian vegetative corridors averaging approximately 100 feet wide and are considered the most important habitat within the WSA. Existing Medicine Lodge Creek wetland habitat condition is excellent with static trend.

Four springs with associated wetlands exist in the WSA.

Forest Resources

The WSA contains 432 acres of commercial forest land and approximately 170 acres of woodlands. The majority of commercial timber is not suitable for logging by conventional techniques because of steep slopes, natural barriers and other factors.



- Woodland
- Forestland
- Wilderness Study Area Boundary

AFFECTED ENVIRONMENT - MEDICINE LODGE



Beaver activity in Medicine Lodge Creek.

One two-track trail has been developed within the Captain Jack Creek drainage for forest management purposes.

At present the only forestry related actions will occur in the upper portions of the Captain Jack drainage. This will be limited to a small amount of harvest (30 to 40 MBF) and some thinning. No timber sales are currently planned for this area.

The lands to be added under the Wilderness Enhancement Alternative contain 24 acres of forest land. The average volume is also 8.5 MBF per acre for a total volume on commercial forest lands of 204 MBF. Most of the area of consideration under the Wilderness Enhancement Alternative is suitable for forest management purposes.

Roads have been developed for timber harvest purpose within the Black Butte area which borders the Wilderness Enhancement Alternative. The potential for forest improvement is very high in this area. Existing timber stands consist of decadent, old growth trees.

Soil Resources

The landscape of the Medicine Lodge WSA is dominated by very deep, rock-walled canyons cutting through sloping to steep mountain backslopes and benches. The soils are very shallow to moderately deep loams and gravelly loams on the upland areas and very shallow to shallow, very gravelly loams in the canyons. The

portion included under the manageability alternative consists of additional similar upland soils. These soils are well drained, low in salinity, moderate to high in organic contents, and low to high in productivity, depending on soil depth and climate. Runoff on the uplands is medium to rapid and in the canyon is very rapid. The water erosion hazard is high to very high throughout the area. Soil loss tolerance of these soils is less than 1 ton and less than 2 tons per acre per year on the very shallow and moderately deep soils, respectively. Rehabilitation potential on the upland soils is moderate but limited by shallowness, erodibility and low soil loss tolerance, and on the canyon soils is low because of the same limiting features.

Land Ownership and Use

Both the surface and mineral estate of all 7,740 acres of public land in the Medicine Lodge WSA is owned by the United States, and administered by the BLM.

A right-of-way for a telephone line has been granted along the Cold Springs Road to the national forest boundary. An 80 acre area within the WSA is withdrawn for a stock drive and 40 acres is withdrawn for a public water reserve.

The WSA is bounded on the east by federal land administered by the Bighorn National Forest except for a parcel of private land that adjoins the WSA near the southeast corner. Access to this

AFFECTED ENVIRONMENT - MEDICINE LODGE

private parcel could require crossing the WSA. Depending upon the approach taken, access to forest service land located near this private parcel also may require crossing the WSA.

The WSA is bounded by federal mineral with state surface estate land on the northeast. The remainder of these state lands that form a portion of the area boundary are state surface and mineral estate. Access to the state lands would not require crossing any of the WSA.

The Wilderness Enhancement Alternative would add public lands and, if acquired, lands currently owned by the state but administered by both the Wyoming State Land Commission and the Wyoming Game and Fish Department.

The additional public lands that would be included are all federal surface and mineral estate. The state owned surface and mineral estates included in the enhancement alternative would have to be acquired. Any state grazing and mineral leases in effect on this lands would be subject to valid existing rights.

Mineral Resources

The Medicine Lodge WSA has moderate potential for the discovery of tar sand deposits. One potentially recoverable deposit has been identified in the WSA and one has been identified adjacent to it (see Map 27). The development of these two deposits is contingent upon successful development of the largest regional deposit (Trapper Creek prospect). One company is actively pursuing feasibility studies of various extraction technologies related to the development of tar sands deposits.

The lands to be added in the Wilderness Enhancement Alternative do not contain either tar sand deposits or oil and gas potential. There are three post-FLPMA oil and gas leases representing 3,790 acres within the Medicine Lodge WSA. The area has low potential for the discovery of oil and gas deposits.

The WSA has low to moderate potential for minor vein-type silver mineralization, sulfides, and rare-earth elements. It is also considered to have moderate potential for "Little Mountain" type uranium mineralization (McEldowney, et al., 1977). No mining claims are located within the WSA; 42 mining claims are located northwest of the WSA for silica. No known silica deposits are located on the lands involved in the WSA.

The lands identified for addition under the Wilderness Enhancement Alternative lie along the same trend as those that exhibit vein-type silver,

sulfides, and rare-earth element potential. This alternative is considered to have low to moderate potential for this type of mineralization.

There are no known salable mineral values in the Medicine Lodge WSA and no historic development of salable mineral values. The potential for such values is considered to be low for this WSA.

Grazing Resources

The actual licensed use has been near the adjudicated level in the Forks (0003) and Mathews Ridge (0058) allotments. Use in the Medicine Lodge Allotment (0143) has been held at 40 percent of the adjudicated 1,200 level AUMs by an agreement with the Wyoming Game & Fish Department and the permittee authorized to use the Medicine Lodge Allotment.

The distribution of livestock grazing use is determined by terrain as the area is dissected by steep canyons that limit the accessibility for livestock use. Access for grazing management is by the boundary roads, and on existing vehicle trails. Access is limited on the Medicine Lodge Allotment between November 1st and April 30th by the Game and Fish Department, but no livestock grazing is authorized during that time period. Access is required to inspect and maintain 9 miles of fences and 3 reservoirs, 3 spring developments, and 4.5 miles of pipeline.

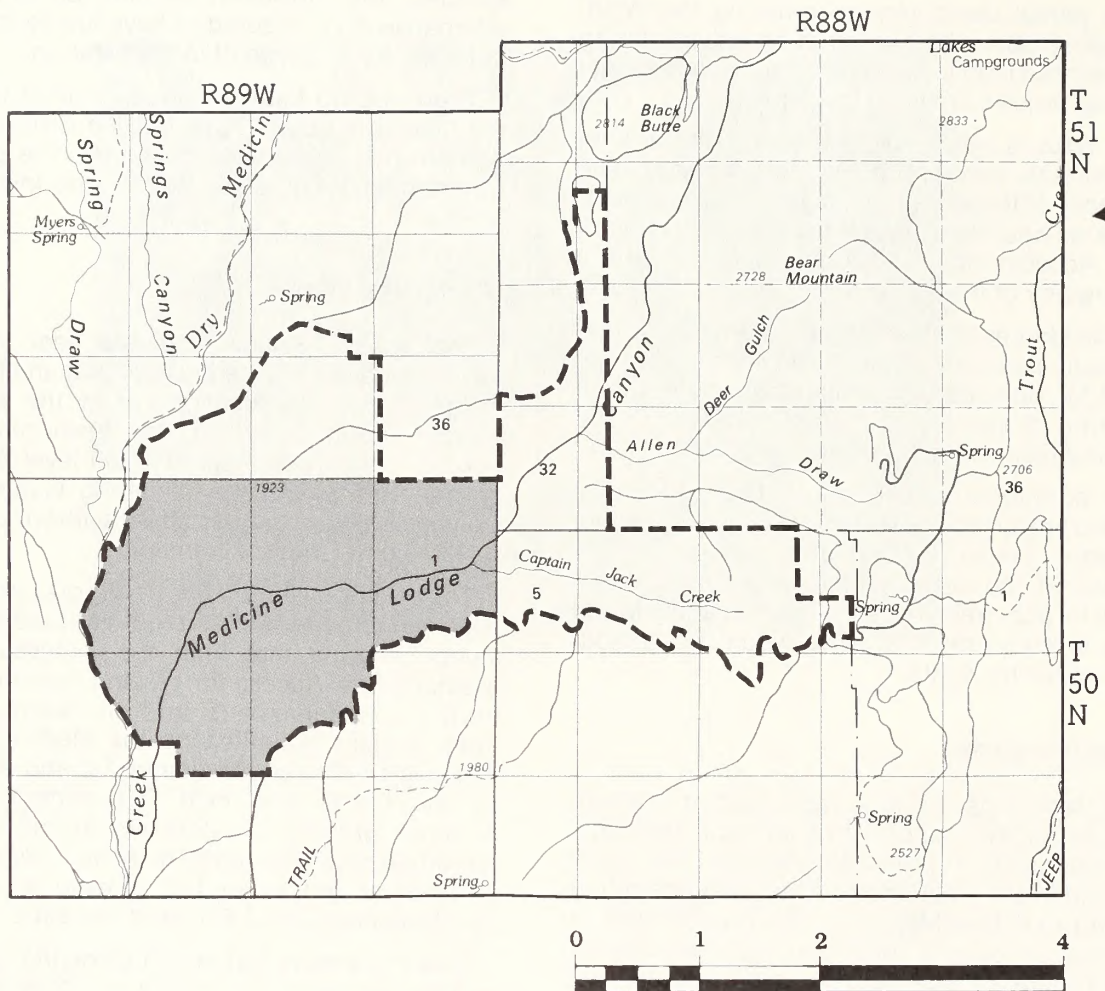
Forks, Mathews Ridge and Medicine Lodge are initially classified as "I" category allotments.

The potential for forage improvement in portions of the study area is quite high, especially in the southern portions of the area. The improvement would result from the development of a grazing management system on the Mathews Ridge (0058) and Forks (0003) allotments. The Medicine Lodge Allotment is currently under a grazing management system in cooperation with the Wyoming Game and Fish Department.

Current ecological range condition for the Medicine Lodge and Mathews Ridge allotments in the study area are 10 percent excellent, 60 percent good, 10 percent fair, 20 percent classified as rock outcrops or woodlands. The Forks Allotment was rated as 40 percent good, 50 percent fair and 10 percent rock outcrop or woodlands.

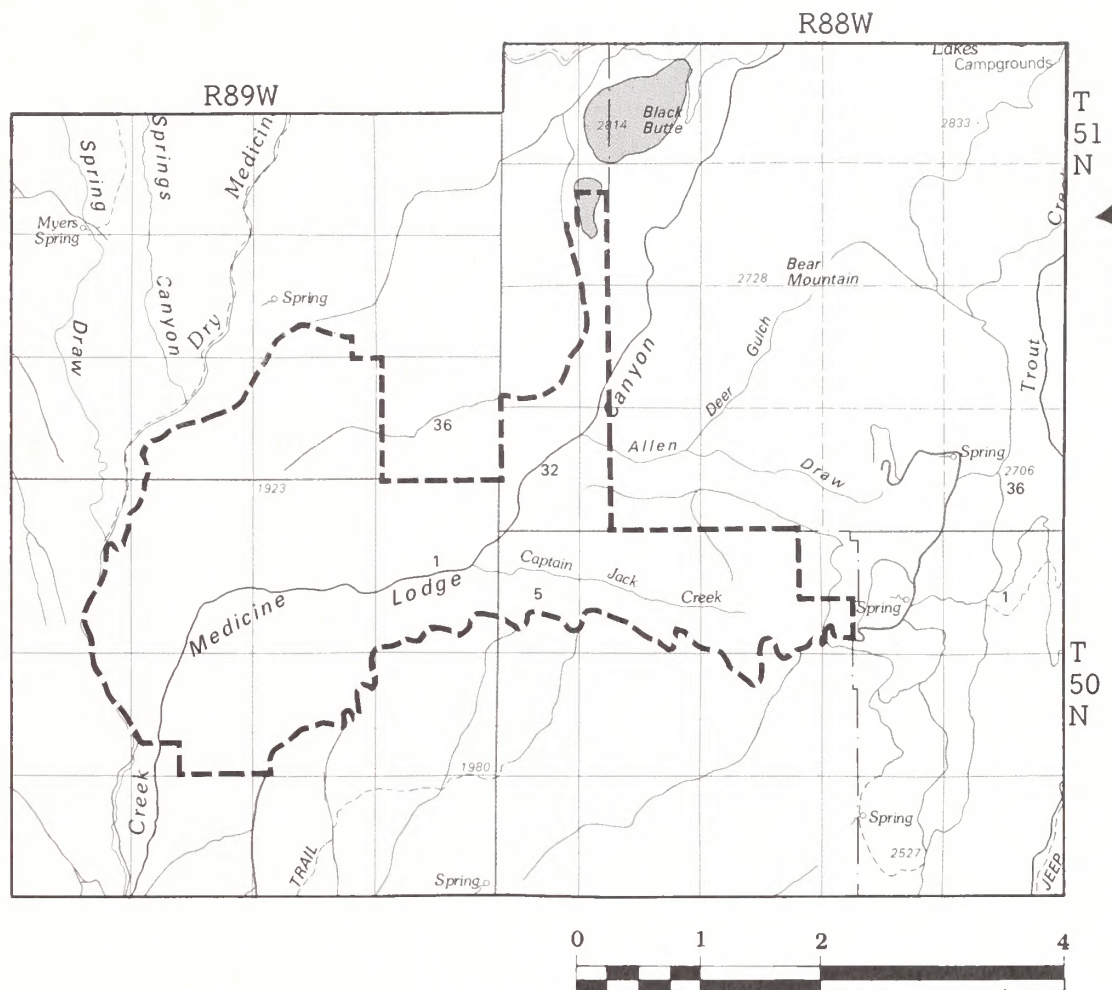
Water Resources

The Medicine Lodge WSA receives 14 to 18 inches of precipitation annually. Snowfall is a significant contribution to annual precipitation.



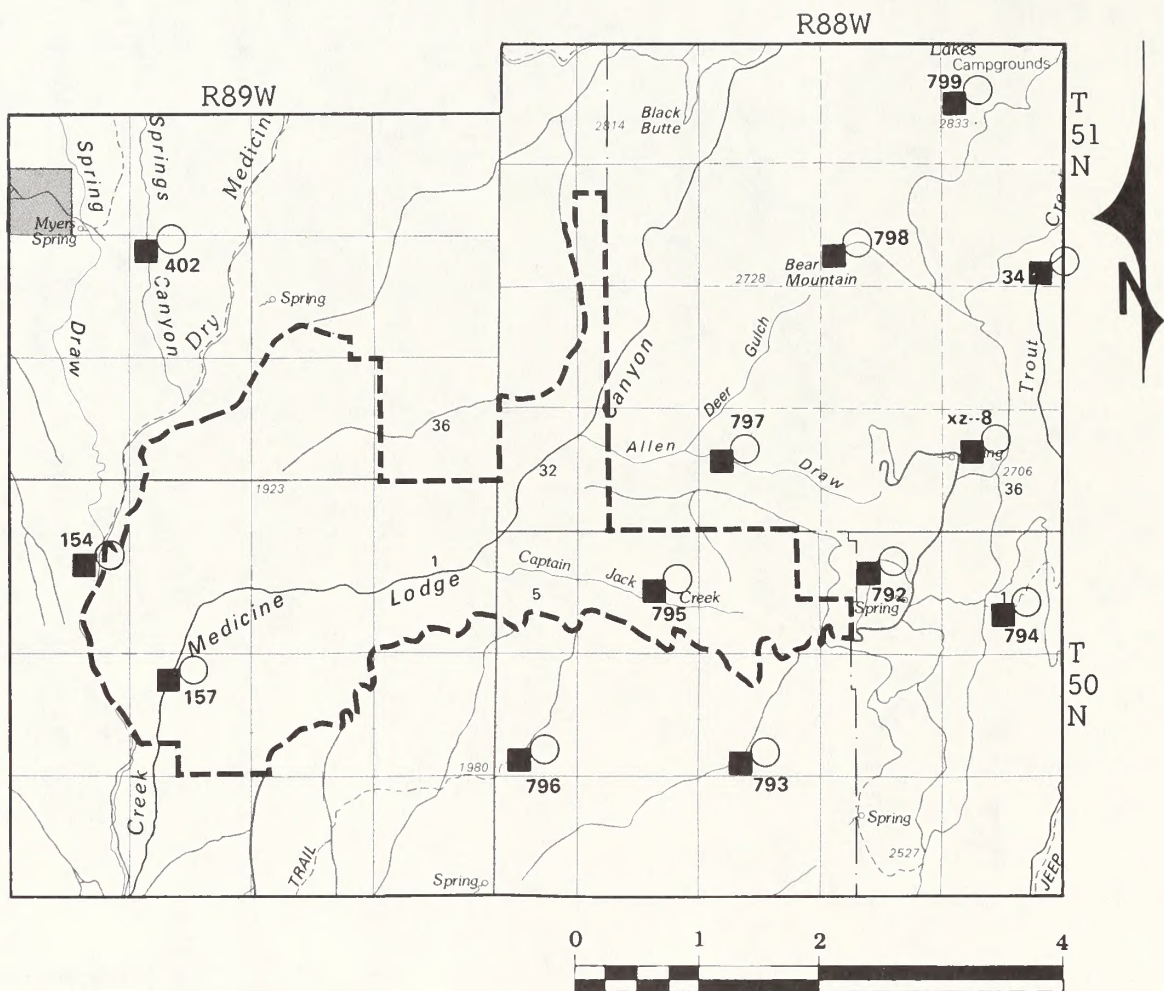
- Post-FLMPA
- Wilderness Study Area Boundary




NOTE: Remainder of Federal Land
within WSA not leased



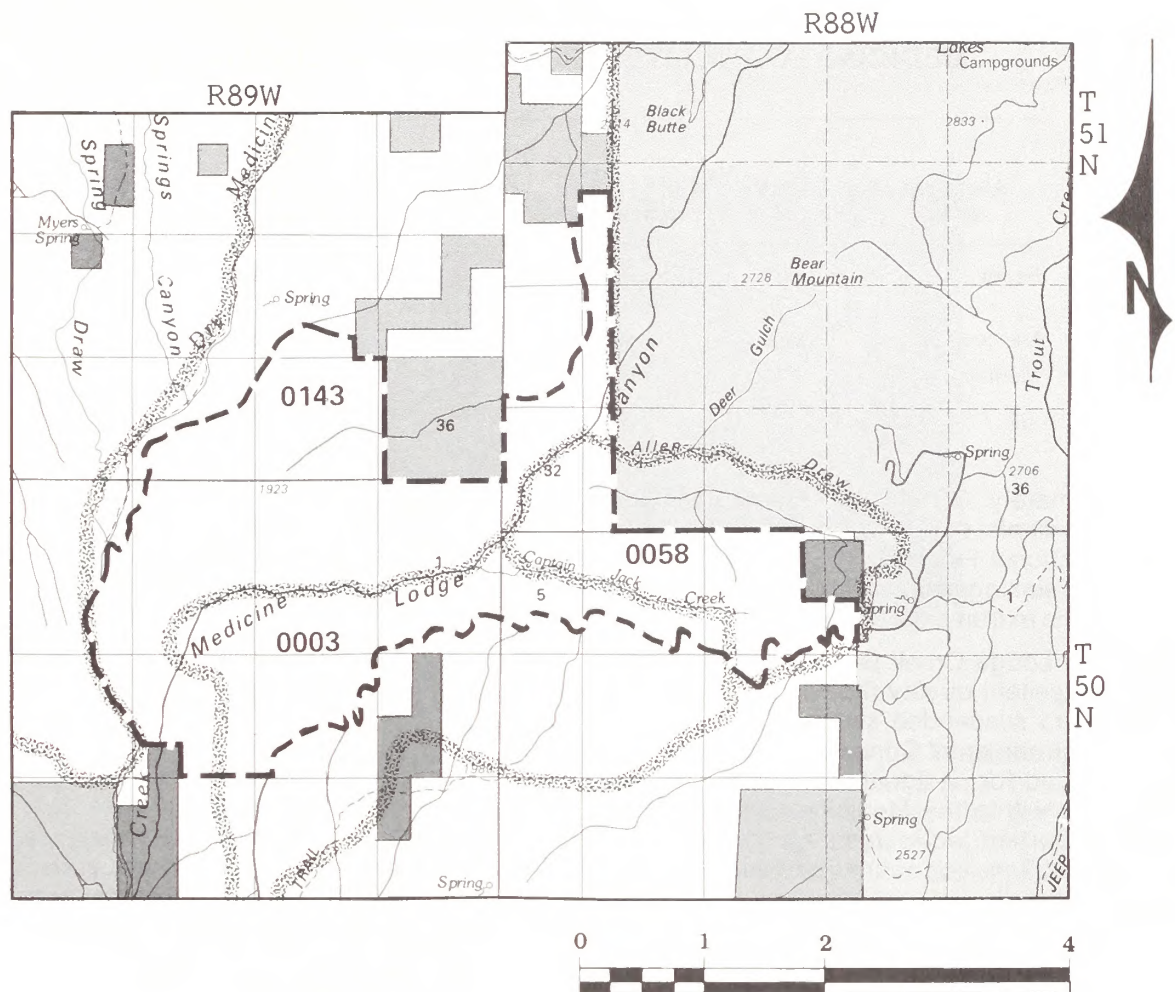
- Potentially Recoverable Tar Sand Deposit
- Wilderness Study Area Boundary

Map 27
MEDICINE LODGE WSA (WY-010-240)
 Leasable Mineral Potential



-  Geochemical Sample Point
[Metallic, Non-Metallic Minerals]
-  Mining Claim
-  Wilderness Study Area Boundary

Map 28
MEDICINE LODGE WSA (WY-010-240)
 Locatable and Salable Mineral Potential



- Federal Surface Ownership (BLM)
- Federal Surface Ownership (USFS)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Grazing Allotment Boundary

0188 Grazing Allotment Number

AFFECTED ENVIRONMENT - ALKALI CREEK

TABLE 10
MEDICINE LODGE LIVESTOCK GRAZING ALLOCATIONS

Allotment Name	Allotment Number	Season of Use	Class of Livestock	AUMs by Alternative	
				No & All Wilderness	Wilderness Enhancement
Forks	0003	Spring/Summer/ Fall	Cattle	146	146
Mathews Ridge	0058	Summer/Fall	Cattle	412	412
Medicine Lodge	0143	Summer/Fall	Cattle	550	929

Approximately 6 miles of Medicine Lodge Creek, a perennial stream with headwaters on the Bighorn National Forest, bisects the WSA. Small reaches of sinking stream segments are known to exist in the extreme eastern portion of the WSA.

Medicine Lodge Creek is estimated to contain water of excellent quality that is low in dissolved minerals and suspended sediments. An Area of Critical Environmental Concern (ACEC) has been recommended for designation on approximately 1,600 acres within the Medicine Lodge WSA, to protect important water recharge areas for the Madison and Tensleep formation aquifers.

The Madison and Tensleep formations are aquifers of regional economic importance outside the WSA. Several flowing artesian irrigation and municipal wells use Madison Formation water within the Big Horn Basin. Areas where these formations are exposed, as in the WSA, are potentially important recharge areas.

ALKALI CREEK

Mandatory Wilderness Characteristics

Size

The Alkali Creek Unit contains 10,100 acres of public land and includes a 680 acre private parcel within its boundaries. Inventory information for the Alkali Creek WSA concluded the private inholding consisted of 711 acres but a closer examination has determined that actual size of the private parcel is 680 acres. There are no lands in the unit which have federally owned minerals underlying privately owned surface.

Naturalness

The Alkali Creek unit is located in a transition zone between the lower west slopes of the Bighorn Mountains and the floor of the Big Horn Basin. The eastern end of the unit is an extension of the juniper covered slopes and canyons which characterize the west slope in the vicinity. The boundaries of the unit are primarily existing roads with a small segment of boundary conforming to property lines.

Vegetation is diverse. Juniper, sagebrush, grasses, and mountain mahogany are common. Limber pine is found in some drainages in conjunction with the juniper. Drainage bottoms which are more mesic in character exhibit cottonwoods, skunkbush, and grasses.

Quality of naturalness within the Alkali Creek WSA is further described by summarizing man-made features. Significant man-made intrusions are few in number, with fences and vehicle routes being the most common. Vehicle routes in the unit are two-track in character. These trails are not a significant influence on the natural character of the unit, although a short cherry-stem road has been identified that provides access to the private inholding.

A segment of another vehicle route is very evident from the south boundary of the unit. It begins outside the unit in T. 51 N., R. 90 W., Section 36, NW¼NW¼ and heads northeasterly through the unit until it intersects with the north boundary in T. 51 N., R. 89 W., Section 7, SW¼SE¼. The southern portion of the route climbs the south facing escarpment and thus is very visible from the south. Relatively sparse, low-growing vegetation provides no screening to reduce the visibility of the route. After the vehicle route reaches higher, more level ground, its visibility

AFFECTED ENVIRONMENT - ALKALI CREEK



Alkali Creek Canyon area.

is greatly reduced. Vegetation (sagebrush, grasses and juniper) is more dense and helps hide the route. Rock shelves, over which the route traverses, become more common. In places, the route is practically invisible due to the rocky character of the soil and the screening effect of vegetation. This vehicle route is considered a two-track trail or way, rather than a road. A small portion of this trail is obviously a visual intrusion.

The other intrusions in the unit, such as fences, are visually insignificant, are few in number and are sufficiently dispersed so as not to be a major impact on the naturalness of the unit.

Outstanding Opportunities

Vegetative and topographic screening are major features of the area's character. The stands of juniper and mountain mahogany help limit sight distances and reduce the visibility of activities occurring in the area. Rock outcrops enhance the opportunity for solitude by providing additional screening. Users could be quite close in terms of distance, yet be unaware of each other's presence because of the excellent visual screening. Further, the ruggedness of the unit enhances solitude by reducing ease of travel through the unit.

Opportunities for solitude are enhanced by the relative absence of use, or at least, evidence of

use. The area is used for livestock grazing, but physical evidence of that use is limited. The inventory process revealed the general lack of reservoirs, sheds, shelters, spring development and the many miles of fences usually associated with livestock grazing. No other uses occur which require permanent structures or developments. Because the land in the unit is relatively unencumbered by man-made features, one could expect to use the area without constantly encountering reminders of man's presence.

The configuration of the unit is conducive to reducing the impacts of activities on solitude because of distances between the interior of the unit and boundary roads and potential distractions on those roads. However, activities on the private parcel could potentially affect the opportunity for solitude. This would occur only if there were a change from the present land use of this parcel.

The quality of any opportunity is dependent on maintaining use levels within the unit to provide an outstanding experience. The size of the unit may be somewhat confining for some recreational pursuits. However, the rugged character of the landscape, the topographic and vegetative diversity of the area, and the lack of man-made confinements such as fences tend to counter the potential restriction of activity due to size. Careful management will be required to preserve the existing opportunities for recreation.

AFFECTED ENVIRONMENT - ALKALI CREEK



The private inholding contains an abandoned cabin and spring.

Special Features

Supplemental values in the unit are primarily related to wildlife. The unit (adjacent to, and west of, the Alkali Road) is classified by the Wyoming Game and Fish Department as critical winter range for mule deer. The entire unit falls within an elk wintering area. More than 200 elk winter in the unit. The unit encompasses at least two sage grouse strutting grounds. Golden eagles and other raptors are known to inhabit the unit.

The study unit is known to have archeological values including pictographs and rock shelters. The extent and significance of these values have not been inventoried.

Other Resource Values

There are no fisheries, or known Threatened or Endangered Species in the WSA.

Recreation Resources

Alkali Creek WSA offers opportunities for a variety of recreation uses. Most of this use involves activities such as horseback riding, hiking, nontechnical rock climbing, and hunting. Recreationists are likely to engage in other activities while moving through the area on foot or horseback. Numerous opportunities exist for

passive activities including study of geology, bird watching, rock hounding, photography, flower collecting, nature study and contemplation and reflection. Camping within the WSA is limited due to the lack of water.

The Alkali Creek WSA offers roaded natural (2,801 acres), semi-primitive motorized (2,679 acres), and semi-primitive nonmotorized (4,670 acres) types recreation opportunities. Recreation day use levels are estimated at 70 percent occurring within the roaded natural area, 20 percent within the semi-primitive motorized area and 10 percent within the semi-primitive non-motorized area. Present use levels are about 2,000 visitor days per year. Most of this use occurs on the Alkali Creek road. Snow conditions on access roads restrict most use from mid-December through March.

Three commercial, day use, outfitter operations may utilize the Alkali Creek WSA during the big game hunting season. This use is permitted under a special recreation use permit. No overnight camps are located in the unit for outfitting purposes.

No developed recreation facilities exist within the WSA.

The area to be added under the Wilderness Enhancement Alternative offer basically the same opportunities and receives essentially the same recreation use as areas within the WSA.

AFFECTED ENVIRONMENT - ALKALI CREEK



View towards Big Horn Basin.

Cultural Resources

The West Slope Archeological Assessment Project inventory sampled 120 acres of the Alkali Creek WSA. Approximately 30 percent of the sites found there are predicted to be significant or eligible for the National Register.

Archeological site density is quite variable but is expected to be greatest in the western and southern portions of the WSA.

Wildlife Resources

Up to 300 elk have been documented using the Alkali Creek WSA as crucial winter and winter habitat. The area also comprises spring and fall elk habitat. Two to three hundred mule deer utilize the area as winter and crucial winter range while fewer numbers remain through the summer.

Approximately 100 to 200 chukars occur in the area yearlong. Two sage grouse strutting grounds as well as nesting winter and yearlong habitat are utilized within the area. Several bobcats inhabit this area on a yearlong basis.

Prairie falcons and golden eagles have been observed in the WSA. Some golden eagle nesting occurs within the area. No prairie falcon nests have been documented.

Wetlands

The WSA contains four stock water reservoirs that influence adjacent riparian vegetation. The private land inholding contains at least one spring. Springs in canyon areas have encouraged the growth of natural wetland vegetation. Existing WSA wetland habitat condition is fair to poor and shows a downward trend.

Forest Resources

There is no commercial forest land in the Alkali Creek WSA. There are approximately 225 acres of juniper woodlands in the area but no plans have been made for managing them for the production of wood fiber commodities.

Soil Resources

The soils are very shallow to moderately deep loams and sandy loams with common sandstone and gypsum outcrops on the uplands and in the narrow drainages. The soils on the fans are moderately deep to very deep loams. The Partial Wilderness and Enhancement alternatives involve soils of similar character. The soils of the area are well drained, moderate to high in salinity, low in organic content, and low to moderate in

AFFECTED ENVIRONMENT - ALKALI CREEK

productivity, depending on depth. Runoff on the uplands and canyons is moderately rapid to rapid and on the fans is moderate. The erosion hazard from water and wind is high in the red loam soils. Soil loss tolerance is less than 2 tons per acre per year on the moderately deep and shallow soils and less than 3 tons on the fans. Rehabilitation potential on the upland soils is moderate but limited by shallowness, relatively low productivity levels and high erodibility. On the fans the potential for rehabilitation is moderately high.

Land Ownership and Use

Both the surface and mineral estate of all 10,100 acres of public lands within the Alkali Creek WSA belong to the United States and are administered by the BLM. A 680 acre isolated area of private surface estate is completely surrounded by public lands, forming about 3.75 miles of private land frontage within the WSA. Of this area, 640 acres has federal mineral estate and 40 acres has private mineral estate.

Physical vehicular access to the private parcel is provided by a group of vehicle trails north and east of the private parcel. It should be noted that legal access in the form of a right-of-way on any of these trails is lacking.

Most of the lands surrounding the WSA are federal lands, but two state sections and one private parcel form portions of the WSA boundary. One state section forms less than .5 mile of the boundary at the northeast corner of the WSA. Another state section near the southern end forms about 1.5 miles of the boundary. The private land is the boundary for about 1 mile of the WSA on the southwest end. Access to these state and private lands does not require crossing any of the WSA.

Mineral Resources

The Alkali Creek WSA is considered by Worland District mineral specialists to have moderate potential for the discovery of tar sand deposits. This is based on the occurrence of favorable geologic conditions and the presence of stratigraphic traps updip of the WSA. Five potentially recoverable deposits have been identified within the WSA and six potential deposits lie approximately 1.5 to 3 miles north of the WSA boundary (see Map 31).

The development of these 11 potential deposits is contingent on the successful development of

the largest regional deposit, the Trapper Creek prospect, located adjacent to the Trapper Creek WSA (see Map 31). One company is actively pursuing feasibility studies of various extraction technologies related to the development of tar sand deposits.

The areas has low oil and gas potential. Moderate interest is demonstrated by six post-FLPMA leases which cover all 10,100 acres in the WSA and 19 abandoned wells which lie to the southwest of the WSA. The WSA lies within 2 miles of an exploratory unit that was formed (the Anita Ditch Unit, now terminated, January 19, 1985) to investigate the potential of stratigraphic traps in the Tensleep Sandstone Formation. BLM records indicate that the unit was terminated because of unproductive wells.

The lands to be acquired under the Wilderness Enhancement Alternative do not contain any of the identified potential tar sand deposits and there are no indications of oil or gas potential.

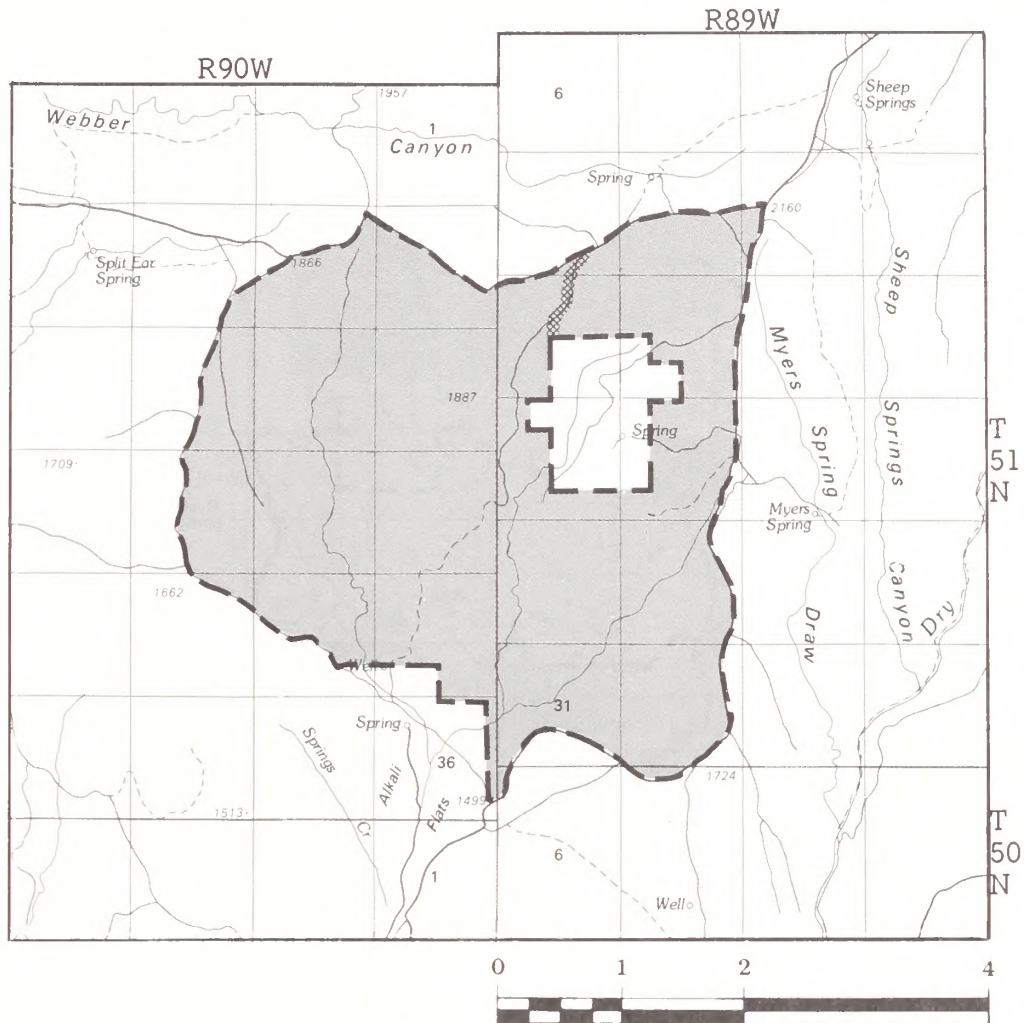
The Alkali Creek WSA is considered to have moderate to low potential for minor vein-type silver mineralization sulfides and rare-earth elements. It is also considered to have moderate potential for "Little Mountain" type uranium mineralization (McElDowney, et al., 1977). The WSA, however, does contain deposits of industrial grade silica (Barrell and Ross, 1983).

Forty-two mining claims are found on or adjacent to land in the Alkali Creek WSA. These claims are all located for silica. Twenty of these claims (see Map 32) were located after the critical deadline for proper location (midnight, December 31, 1983), and are considered void under provisions of the Wilderness Act of 1964. Strong indications of vein type silver, sulfides, and rare-earth element mineralization were highlighted by BLM reconnaissance geochemical survey results in T. 51 N., R. 89 W., Section 17, NE $\frac{1}{4}$ SW $\frac{1}{4}$; T. 51 N., R. 89 W., Section 20, SE $\frac{1}{4}$ SE $\frac{1}{4}$; and T. 51 N., R. 89 W., Section 31, SW $\frac{1}{4}$ NW $\frac{1}{4}$.

Five other sample points that lie up to 3 miles outside the WSA boundary show similar indications of mineralization that suggest vein type silver sulfide or rare-earth element potential.

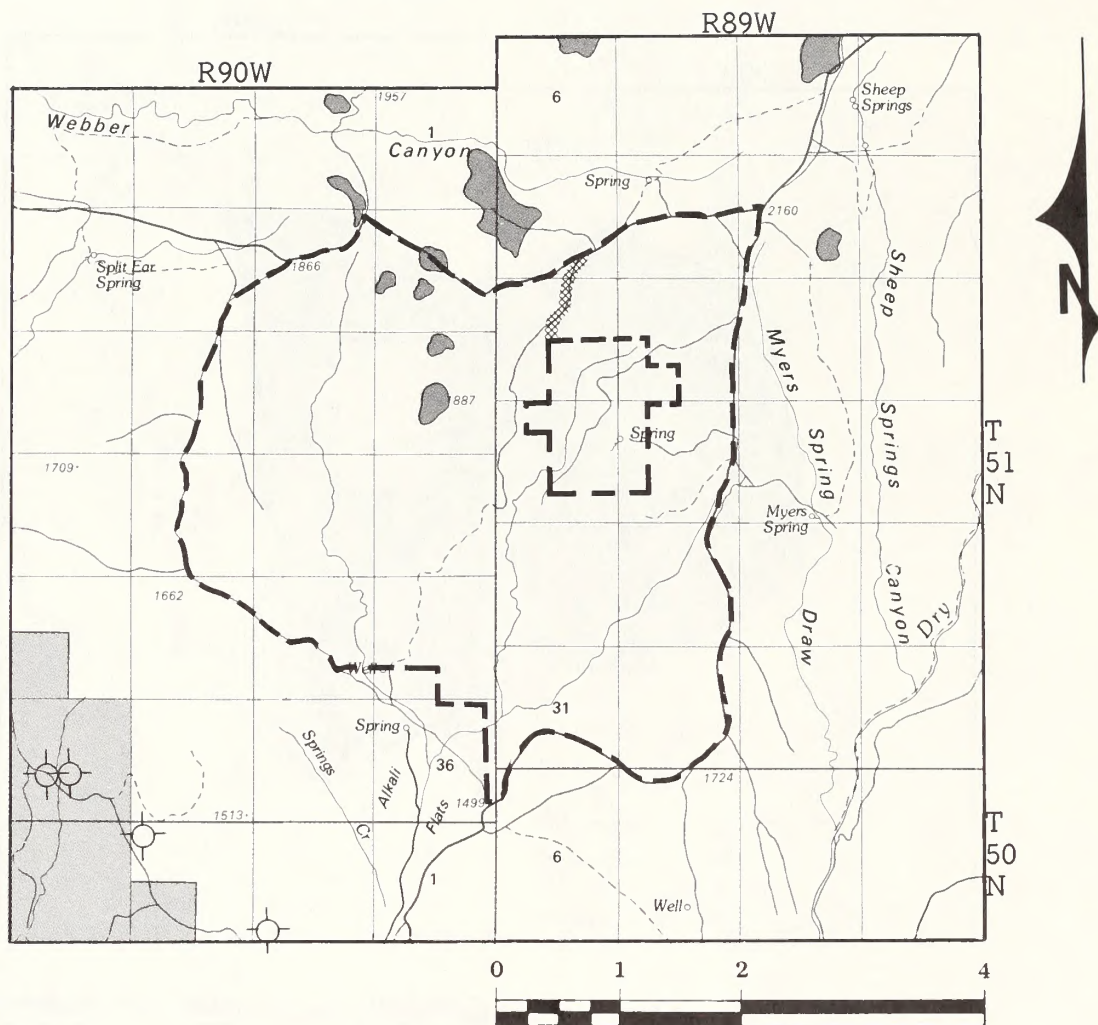
The lands to be acquired under the Wilderness Enhancement Alternative contain one mining claim for silica.






There are no recognized salable mineral values in or adjacent to the Alkali Creek WSA. The potential for salable minerals in the WSA is low.



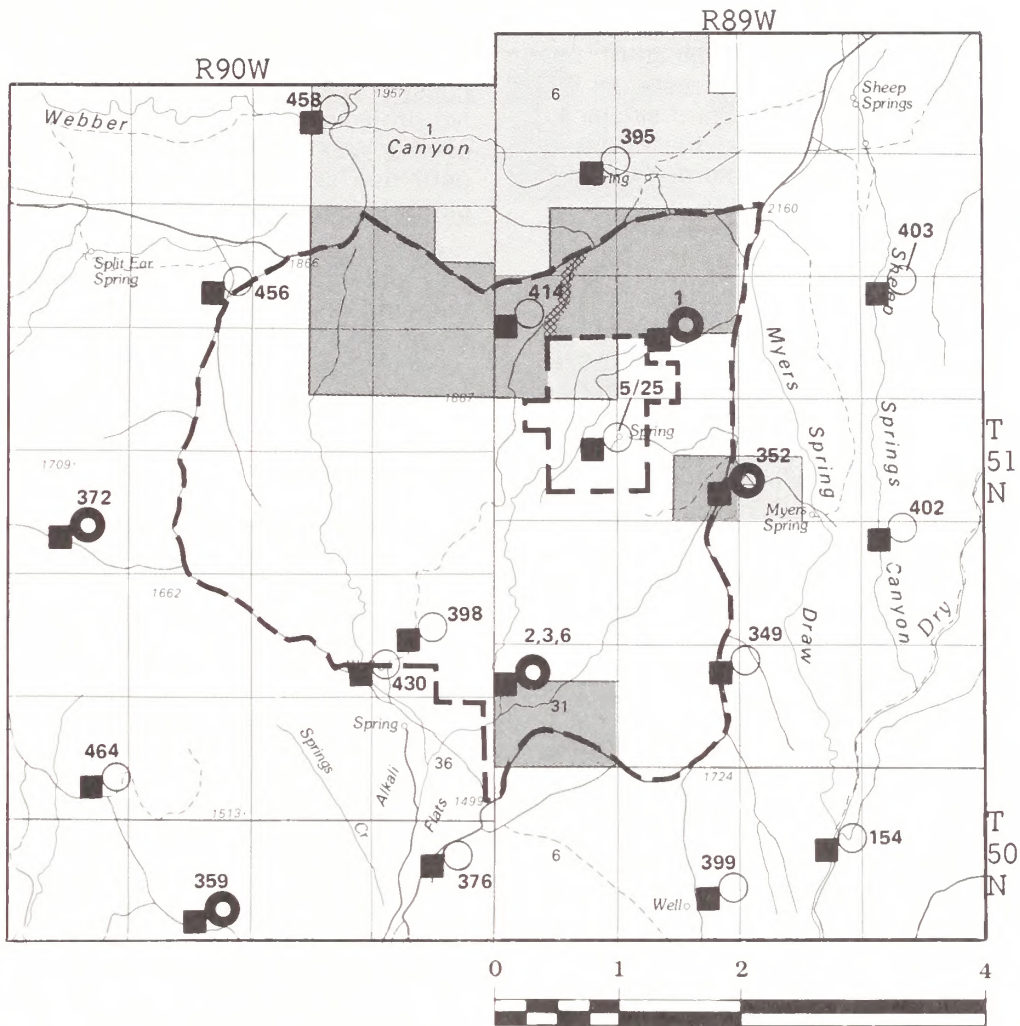
- Post-FLMPA Lease
- Wilderness Study Area Boundary
- Excluded Area







Map 30
ALKALI CREEK WSA (WY-010-241)
 Oil and Gas Lease Status



-  Anita Unit Ditch Boundary
-  Potentially Recoverable Tar Sand Deposit
-  Wilderness Study Area Boundary
-  Dry Hole
-  Excluded Area

Map 31
ALKALI CREEK WSA (WY-010-241)
 Leasable Mineral Potential



-  Geochemical Sample Point
[Metallic, Non-Metallic Minerals]
-  Outer Ring Indicates Anomalous Mineralization
-  Mining Claim
-  Mining Claims In WSA
-  Wilderness Study Area Boundary
-  Excluded Area

Map 32
ALKALI CREEK WSA (WY-010-241)
 Locatable and Salable Mineral Potential

AFFECTED ENVIRONMENT - ALKALI CREEK

Paleontologic Resources

The Alkali Creek WSA is considered to have only low to moderate potential for the discovery of significant vertebrate fossils. Most of the potential associated with the area rests on the possible discovery of a natural hazard similar to the Natural Trap Cave located in the northern Bighorn Mountains. No other potential paleontologic resources are known.

Grazing Resources

The Alkali Creek WSA includes portions of two grazing allotments (see Map 33). The actual licensed use has been near the adjudicated level in the Weber (0002) Allotment. The use in the Small (0188) Allotment has been about 80 percent of the adjudicated level over the last 4 years.

The livestock use in the Weber Allotment has been under a grazing system but it is not a designated allotment management plan. The Small Allotment is one of the four allotments involved in a Coordinated Resource Management Plan in cooperation with the Soil Conservation Service (USDA), the permittee and the BLM.

Access for grazing management is by the boundary roads and existing vehicle trails. The existing trail from the Alkali Road to the private lands in the Small Allotment is used to maintain an existing water development and other livestock management facilities. Other trails in the WSA are used for maintenance of range projects and for general livestock management. Access to a total of two reservoirs, 4.5 miles of fence and one range enclosure is required for periodic maintenance.

Weber and Small have been initially classified as "I" category allotments. There is a potential for forage improvement in most of the study area

through livestock grazing management and range improvement practices. Several sagebrush and juniper control projects have been proposed in the Small Allotment through the use of prescribed fire and chemical controls. About 1 mile of fence construction is proposed for the Small Allotment. No projects have been proposed in the portion of the WSA in the Weber Allotment, but the permittee has expressed an interest in revising the current grazing management system.

Current ecological range condition in the WSA was determined by a recent BLM range site mapping effort. Range conditions for the Alkali Creek WSA are rated as 5 percent excellent, 70 percent good, 15 percent fair, 10 percent was classified as rock outcrops or woodlands.

Water Resources

The Alkali Creek WSA receives 10 to 16 inches of precipitation annually. A significant portion of this precipitation is in the form of snowfall at the higher elevations. Ephemeral drainages channel surface runoff south to Paint Rock Creek from the WSA.

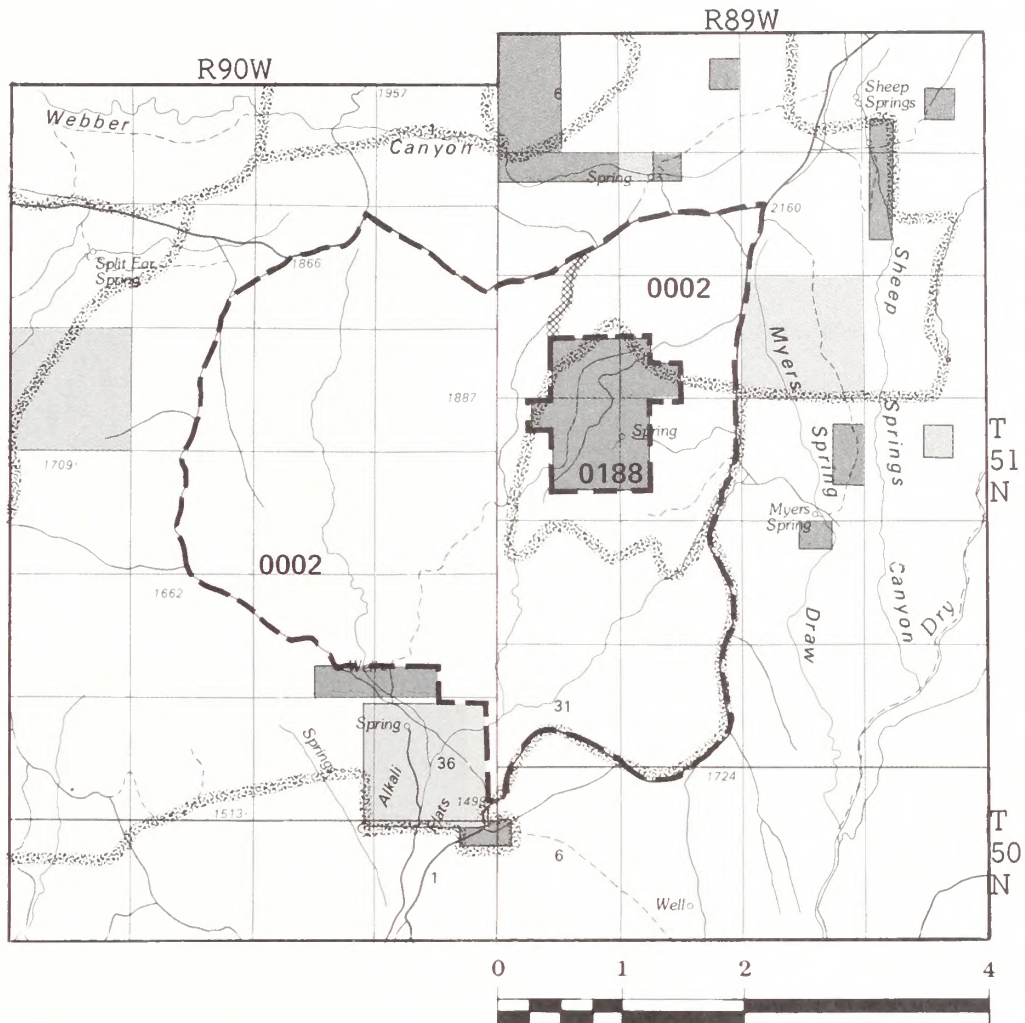
No water quality information has been collected within the WSA. However, water originating from this area could be expected to contain relatively high suspended sediment concentrations.

Groundwater may be obtained from underlying aquifers that include the Tensleep and Madison formations. Wells that penetrate these aquifers can yield surface artesian flows over 1,000 gallons per minute if conditions are right. One unused stock water well has been developed in the WSA.

The private lands to be acquired under the Wilderness Enhancement Alternative include one spring.

TABLE 11
ALKALI CREEK LIVESTOCK GRAZING ALLOCATIONS

Allotment Name	Allotment Number	Season of Use	Class of Livestock	AUMs by Alternative		
				No & All Wilderness	Partial Wilderness	Wilderness Enhancement
Weber	0002	Summer/Fall	Cattle/Sheep	697	625	697
Small	0188	Spring/Fall	Cattle/Horses	114	79	211



- Federal Surface Ownership (BLM)
- State Surface Ownership
- Private Surface Ownership
- Wilderness Study Area Boundary
- Grazing Allotment Boundary
- 1514** Grazing Allotment Number
- Excluded Area

Map 33
ALKALI CREEK WSA (WY-010-241)
 Grazing Allotments

TRAPPER CREEK

Mandatory Wilderness Characteristics

Size

The Trapper Creek unit contains 7,200 acres of public land. There are no state or private inholdings. This unit stands as an individual area not dependent on other lands for size integrity. There are no split-estate lands in the unit.

Naturalness

Trapper Creek is one of the most spectacular canyons on the west slope of the Bighorn Mountains. The canyon is carved primarily into the limestones of the Madison Formation. Near-vertical cliffs overlie steep talus slopes, which in places overlie the stair-step features characteristic of the upper unit of the Madison. At the boundary of public land near its mouth, the canyon is approximately 500 feet deep and 800 feet from rim to rim. Most of the depth is nearly vertical cliff face with only a very short talus slope at the bottom of the cliff. Near its middle, the canyon becomes much deeper, with a total depth of more than 1,200 feet from the rim to the creek.

Approximately half the depth of the canyon at this point is in cliffs. The remainder of the canyon depth consists of steep talus slopes. Near the eastern end of the unit, the canyon becomes much shallower; 600 feet deep and three-quarters of a mile between the rims.

Trapper Creek has few significant side canyons or drainages. In the length of the unit, only one significant side canyon enters from the south. Several canyons enter from the north, but many of these are hanging canyons ending with impassable drop-offs into Trapper Creek. This dearth of side canyons considerably limits the access routes available into the canyon.

A considerable diversity of vegetation communities are found within the Trapper Creek unit. These communities can be roughly grouped into four descriptive designations: (1) riparian community; (2) conifer community; (3) mountain mahogany-juniper community; and (4) sagebrush-grasslands community.

The riparian community is found throughout the length of Trapper Creek and is also found in some of the small side drainages. Riparian vegetation along water courses is abundant and in many places becomes an obstacle to passage through the canyon.



Trapper Canyon is one of the most spectacular canyons on the west slope of the Bighorns.

The conifer community is found on the steep north facing slopes of the main canyon and some side canyons. Douglas fir is the dominant species, but occasional junipers and limber pines are mixed in with the fir. The understory is generally sparse, and consists of an occasional common juniper, big sagebrush and a variety of forbs and grasses.

The mountain mahogany-juniper community is present on north facing slopes at lower elevations and on the south facing slopes all along the canyon. The community on the north facing slopes tends to be a mixture dominated by juniper with intermingled sagebrush and mountain mahogany. On the south facing slopes in the lower elevations the juniper gives way to sagebrush domination.

The sagebrush-grasslands community extends over most of the unit above the canyon rims and also includes some lands within the canyon rims on south facing slopes. The dominant species varies considerably from point to point in this community with sagebrush being dominant in some areas and stands of grass being dominant in others.

AFFECTED ENVIRONMENT - TRAPPER CREEK

Intrusions on natural qualities within the Trapper Creek WSA are further described by summarizing man-made features.

The evidence of man's activity in the unit is very limited within the confines of the canyon itself; man-made intrusions are virtually nonexistent. The only man-made features noted in the canyon were a small hydraulic water pump in T. 52 N., R. 89 W., Section 23, and the remains of a cross-canyon drift fence just downstream from the pump. A trail on the eastern edge of the WSA was most likely constructed to allow cattle access in Trapper Canyon. Trail construction consisted of tree and brush removal along approximately 1 mile within the WSA.

Man-made intrusions above the canyon rims are mostly vehicle trails. Another very minor intrusion on natural character on the unit consists of two power lines located just to the south of the Black Mountain Road in T. 52 N., R. 90 W., Section 4. These lines are a minor intrusion because only approximately .5 mile of their length is within the

unit. They parallel the Black Mountain Road and are less than on .2 mile south of the road.

Only the power lines and livestock grazing could be considered impacts in the unit resulting from activities occurring outside the area. Some impacts from livestock grazing should be eliminated by tighter control of grazing since livestock grazing in Trapper Creek is not authorized. Grazing on the rims will probably continue. Activities occurring outside the study area do not significantly influence the naturalness of the area.

Outstanding Opportunities

The topography and vegetation of Trapper Canyon provide exceptional visual screening. It may be possible to see the canyon rims from the canyon bottom, but for the most part, activity on the rim would be so distant that it would not be particularly intrusive. Also, the boundaries of the unit generally include enough land above the canyon rim to ensure that intrusive activities do not occur immediately along the rim where they could be observed from within the canyon.

Above the rim, good solitude experiences should be possible since the type and levels of activity surrounding the canyon rim are generally of a nature that would be reasonably compatible with preservation of a solitary experience within the unit.

Opportunities for solitude in the canyon are also enhanced by the general absence of use. Livestock use has not been allocated and has not occurred in most of the canyon, and recreational use has also been extremely limited. As a result, there are virtually no trails or other remains of previous use to intrude on a perception of solitude. This lack of use reflects the difficulty of access to and through the unit. Travel through the canyon is extremely difficult. There are no trails except those made by game. These game trails may be blocked by fallen timber, cross steep talus slopes, and involve wading the creek. Access to the canyon is limited to a very few routes by the unbroken cliffs of the canyon walls. Those routes which are possible to negotiate require crossing privately owned land.

Although the unit is small in terms of acreage and is long and slender, the opportunities for solitude are not lessened. The values of topographic and vegetative screening counteract the potential affects on solitude resulting from size and configuration. Additionally, the constraints on physical access provided by the canyon rims



Distinct vegetative communities are found in Trapper Creek WSA.

AFFECTED ENVIRONMENT - TRAPPER CREEK



Uplands adjacent to Trapper Canyon.

would make it possible to control use in order to maintain use levels at a point that would protect outstanding opportunities for solitude.

Since the major portion of the unit is in the canyon, the presence of outside sights and sounds will not affect much of the use of the unit. Outside sights and sounds will have little or no effect on the use of the canyon portion of the unit; however, uses which may occur on the canyon rims could be affected. If occurring, these effects should be minimal. The area around Trapper Creek is uninhabited. Development in the form of fences, stock water reservoirs, vehicle trails and a few cabins exist in the area but are essentially unintrusive.

The Trapper Creek unit could provide outstanding opportunities for primitive and unconfined recreation. The types of activities that could be engaged in and the setting of the unit are essentially similar to those traditionally associated with a "typical" wilderness setting and experience.

Special Features

A variety of supplemental values enhance the wilderness characteristics of the Trapper Creek unit. These include geologic, wildlife, ecologic, and scenic values.

The geologic values associated with this unit are derived from the exposure of features and formations revealing the geologic history of the region as well as from examples of geologic processes at work. In addition, a second geologic value relates to paleontology of the unit.

Another value relating to the geology of the unit is the potential that cave resources will be identified within the unit. The lower entrance to Great Expectations Cave (Great X) is located in the study unit. The lower entrance is approximately 4 miles downstream from the upper entrance. The elevation difference between entrances is 1,403 feet, making Great X the second deepest cave in the United States. It is expected that intensive exploration of Trapper Creek will yield new discoveries of caves in the canyon. Strong interest in Great X among spelunkers will undoubtedly result in additional discovery of passages.

The Trapper Creek landscape falls within the "A" quality scenery or category, which is the highest rating level possible. The rating is based on the dramatic vertical relief of the cliffs, spires, and massive rock outcrops of the canyon walls; the rich variety vegetation; the presence of a clear cascading stream and the rich color combinations. This exceptionally high scenic quality rating enhances other wilderness values of the unit. The combination a "A" quality scenery with medium

AFFECTED ENVIRONMENT - TRAPPER CREEK

visual sensitivity has resulted in a Class II visual resource management class.

Other Resource Values

Recreation Resources

Recreation activities in the Trapper Creek WSA are largely concentrated above the canyon, due to the unit configuration. The recreation opportunity investigation completed for this area verifies an excellent opportunity for semi-primitive nonmotorized types of recreation activities.

The Trapper Creek WSA offers roaded natural (304 acres), semi-primitive motorized (1,844 acres), and semi-primitive nonmotorized (5,016 acres) types recreation opportunities. Recreation day use levels are estimated at 20 percent occurring within the roaded natural area, 65 percent within the semi-primitive motorized area and 15 percent within the semi-primitive non-motorized area. The setting of the canyon, its



Steep canyon walls limit access into Trapper Canyon.

outstanding scenic values, the ecological diversity, the geologic features, and wealth of wildlife would provide an excellent resource base for a variety of activities. These activities could include hiking, spelunking, mountain climbing, hunting, fishing, and a variety of supplemental activities such as photography, nature study and wildlife observation.

Low use levels and highly dispersed use patterns have made it impractical to collect use data for the WSA, but present use levels are probably less than 500 visitor days per year. Due to snow conditions on access roads, most visitor use is restricted from mid-December through April.

Five commercial, day use, outfitter operations may utilize the Trapper Creek WSA during the big game hunting season. This use is permitted under a recreation use permit. No overnight camps are located in the unit for outfitting purposes. No developed recreation facilities exist within the WSA.

The WSA trout population, which is self-sustaining, supports about 5 fisherman days per mile each year. The Wyoming Game and Fish Department estimates the stream can support six times (30 fisherman days per mile) as much fishing pressure.

Cultural Resources

The West Slope Archeological Assessment Project inventory sampled 170 acres of the Trapper Creek WSA. This inventory revealed a high occupancy within the area during prehistoric times. It is estimated that at least 25 percent of the sites found will be significant or eligible for National Register placement. The highest archeological site density is expected to be found on rims and in side canyons. The main canyon contains numerous rockshelters but little evidence of occupation.

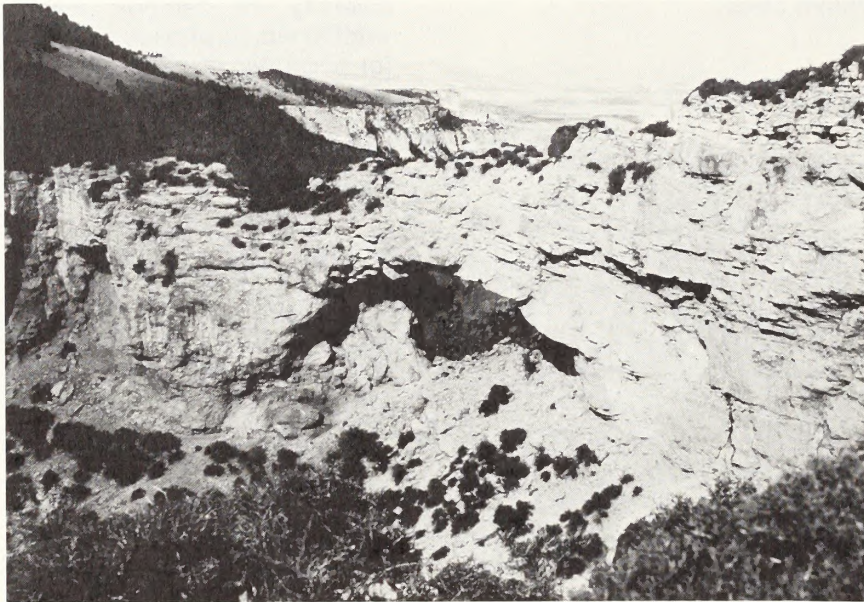
No historic sites are known to exist in the WSA.

Wildlife Resources

Four to five hundred elk use portions of the Trapper Creek WSA as winter and crucial winter habitat. Two to three hundred mule deer occur in the WSA during crucial winter and winter periods. Fifty to sixty elk inhabit the area in summer.

Approximately 100 chukar partridge, occupy the area. Blue grouse and sage grouse also utilize

AFFECTED ENVIRONMENT - TRAPPER CREEK



Natural arch within Trapper Canyon.

the WSA. Bobcats, mountain lion and black bear frequent lands within the WSA yearlong as well.

Golden eagles use the Trapper Creek WSA year-round. In addition, golden eagles and prairie falcons both nest in the WSA.

Three or four bald eagles use the Trapper Creek WSA for winter hunting territory. Several peregrine falcons have been observed in this WSA during the spring and summer periods. Foot and helicopter surveys have revealed no falcon aerie locations to date, although some are thought to exist. Trapper Creek is also a high priority area identified within the Big Horn Basin for peregrine falcon reintroduction.

Fisheries

The Trapper Creek WSA contains 10 miles of clean, clear fishery waters. Game fish known to be present in the WSA include brown, rainbow and cutthroat trout. Brown trout are most abundant, especially in the lower creek reaches. On August 31, 1980, the brown and rainbow trout populations were estimated to be 1,612 and 26 fish per mile, respectively.

The Wyoming Game and Fish Department classified Trapper Creek as a Class 3 stream (important trout water; fishery of regional importance). The stream is considered intermediate in productivity and very high in aesthetics. The Class 3 given for aesthetics indicates, "A

stream of outstanding natural beauty, usually of a unique type and possessing wilderness characteristics."

Wetlands

The Trapper Creek WSA contains 11.5 miles of stream zone on Trapper Creek, .6 mile on the south tributary, and .4 mile on Jack Creek. The channel and riparian wetland zones on Trapper Creek and tributaries are mostly in pristine condition and show a static trend. Channel stability is good due to the presence of bedrock, large boulders, rubble and gravel. The narrow riparian zone (averaging approximately 100 feet in width) supports dense growths of currant, gooseberries, grapevine, chokecherries, cottonwoods, alders, aspen, grasses and forbs. This wetland zone is considered the most important habitat within the WSA. Livestock use is mostly absent.

Trapper Creek and canyon was given the highest possible recommendation as a special management area typifying pristine forest/woodland habitat (Evert et al., 1985). The area was also recommended for designation as a natural aquatic/wetland area typifying a perennial stream with deciduous forest, shrub, and evergreen forest vegetation. The area has been proposed as a National Natural Landmark during a recent Wyoming Natural Area Needs Workshop. The purpose of this workshop was to identify sites requiring special management so land manage-

AFFECTED ENVIRONMENT - TRAPPER CREEK



Junction of Trapper and Battle creeks.

ment agencies could properly incorporate these needs in land management plans.

Forest Resources

The Trapper Creek WSA contains approximately 1,324 acres of commercial forest land and 276 acres of woodland. The major forest type in the WSA is Douglas fir. The average volume per acre for these stands is 7.1 MBF for a total volume of 9,400 MBF within the WSA.

As with the Medicine Lodge WSA, most of the commercial timber is not suitable for logging by existing conventional techniques due to steep slopes, natural barriers and other factors.

Much of the area on the eastern end of this WSA has potential for forest management activity. All of the access in this WSA is on the rim of Trapper Creek which limits its suitability for forest management.

At present there are no definite planned forest management activities in this area. Logging has occurred on the south rim of the canyon just outside the WSA, but there are no plans for further work in the area at this time.

Soil Resources

The soils of the backslopes and benches are mostly very shallow to moderately deep loams and sandy loams, some with moderate coarse frag-

ments, and the canyon soils are very shallow and shallow, very gravelly loams. These soils are all well drained, low in salinity, low to high in organic contents, and low to high in soil productivity, depending on soil depth and climate. Runoff throughout the area is moderate to rapid and the water erosion hazard is moderate to high. Soil loss tolerance is less than two tons/acre/year on the uplands and less than one ton in the canyon. Rehabilitation potential on the upland soils is moderate to high, being limited to lower elevations by limited productivity, high erodibility and low soil loss tolerance. In the canyon the potential is low because of limitations of soil depth, high erodibility and very low loss tolerance.

Land Ownership and Use

Both the surface and mineral estate of all 7,200 acres of public lands within the Trapper Creek WSA is the property of the United States and is administered by the BLM. Two power lines for which rights-of-way have been granted affect approximately three acres in T. 52 N. R. 90 W., Section 4.

Approximately 640 acres within the Trapper Creek WSA (T. 52 N., R. 89 W., Sections 22 and 23) fall within the proposed Spanish Point Caves Withdrawal. Federal surface and mineral estate is proposed for withdrawal from appropriation under the mining laws in order to protect fragile cave ecosystems.

R90W

R89W

T 52 N

Black Mountain Radio Tower

Table Mtn

Tripper Canyon

Dry Bush

Trapper Bush

Spring

Creek

Davils Leap

Spring

Trapper Bush

Spring

Creek

White Creek

White Spring

Jack White Spring

Trapper Canyon

Trapper Canyon

1 Springs Creek

2683

2670

2756

36

2558

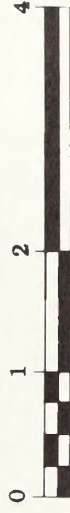
31

49

36

Woodland
Forestland

Wilderness Study Area Boundary



Map 34
TRAPPER CREEK WSA (WY-010-242)
Forest and Woodland Resources

AFFECTED ENVIRONMENT - TRAPPER CREEK

Additional public lands adjoin the WSA on the northwest and southwest and scattered locations along the south boundary. Public access has not been developed to the WSA. Legal access is from the Trapper Creek Road on the west and then across public lands to the WSA.

State land adjoins the area on the north for about two miles. The remaining ownership is private land. Access to those lands is not affected by the WSA.

Mineral Resources

The Trapper Creek WSA is considered by Worland District minerals specialists to have high potential for the development of tar sand deposits. This is based on the presence of a stratigraphic trap just south of the WSA (T. 52 N., R. 89 W., Section 33, S½NW¼). Two potential recoverable deposits have been recognized within the WSA and nearly 30 known deposits are outside the boundaries of the WSA (see Map 36). The development of these proximal deposits are contingent upon the successful development of the deposit referred to above as a stratigraphic trap. One company is actively pursuing feasibility studies of various extraction technologies relating to the development of this deposit.

Resources located in this one deposit are estimated at about 2 million barrels of recoverable petroleum from the tar sands (United Resources, Inc., 1981). Potential resources from the two deposits inside the WSA could total an additional 2 million barrels. Regional resources including all those potential deposits depicted (Map 36) could amount to more than 40 million barrels of petroleum. A well in T. 52 N., R. 89 W., Section 33, SW¼NW¼, was drilled to test a recovery technique that could be applied to all of the tar sand deposits. Additional information is lacking to determine if tar sand deposits are of economic interest.

Except for tar sands the area has low oil and gas potential. Moderate interest is demonstrated in the Trapper Creek WSA by eight post-FLPMA leases that represent 5,432 acres within the WSA.

The Trapper Creek WSA is considered to have moderate to low potential for minor, rim-type silver mineralization, sulfides, and rare-earth elements. It is also considered to have moderate potential for "Little Mountain" type uranium mineralization (McEldowney, et al., 1977). The WSA and areas adjacent to the WSA contain potentially economic deposits of industrial grade silica. Approximately 14 silica mining claims are located just south of the WSA boundary. Strong indications of veining

type silver, sulfide, and rare-earth element mineralization were suggested by the result of a BLM reconnaissance geochemical survey. In particular, results from nine local sample points (see Map 37) indicate mineral resource potential.

There are no recognized salable mineral values in or adjacent to the WSA. The potential for salable minerals in the WSA is low.

Paleontologic Resources

The Trapper Creek WSA is considered to have only low to moderate potential for the discovery of significant vertebrate fossils. Most of the potential associated with the area rests on the possible discovery of a natural hazard such as the Natural Trap Cave located in the northern Bighorn Mountains. No other potential paleontologic resources are known.

Grazing Resources

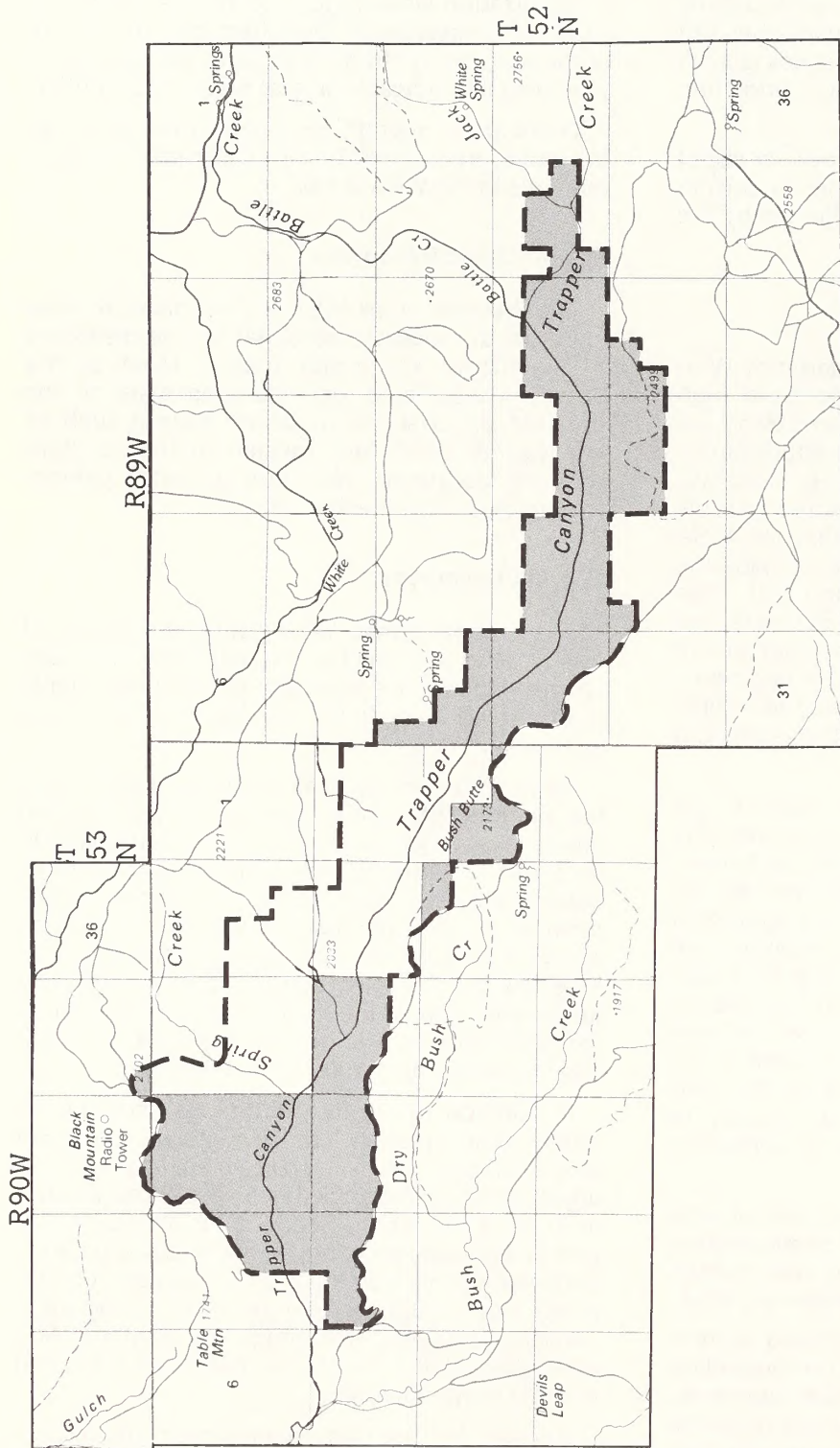
The Trapper Creek WSA contains portions of five grazing allotments. The attached Livestock Grazing Allocations table and Grazing Allotments map provides specific information for these allotments.

Actual licensed use in all of the listed allotments has been at total preference for the past several years. Livestock use on the portions of the study area within Trapper Creek itself is light or in most cases nonexistent due to the steep canyon walls. Most of the livestock use occurs on the uplands above the canyon rim. Some unauthorized livestock drift into the canyon from private land at the east end of the WSA has occurred. Since forage in this area is not allocated for livestock use, construction of a fence is needed.

In addition to the five allotments listed in the table, some livestock use is made on the north side of Trapper Creek in an area that has not been adjudicated for livestock use. These areas, located in T. 52 N., R. 89 W., Sections 18, 19, 20, 21, 22 and 23, are adjacent to privately owned rangelands and were not allotted for livestock use due to their small size, rough terrain or lack of livestock carrying capacity. The forage on approximately 600 acres of the North rim has been allocated entirely to wildlife use.

Access for grazing management is by the boundary road and vehicle trails that extend toward the rims of Trapper Creek on both the north and south. Access is required for distributing mineral supplements, maintaining approximately 1 mile of drift fence, a hydraulic water pump development, and for livestock management.

R90W



Post-FLMPA Lease

Wilderness Study Area Boundary

NOTE: Remainder of Federal Land within WSA not leased



Map 35
TRAPPER CREEK WSA (WY-010-242)
Oil and Gas Lease Status

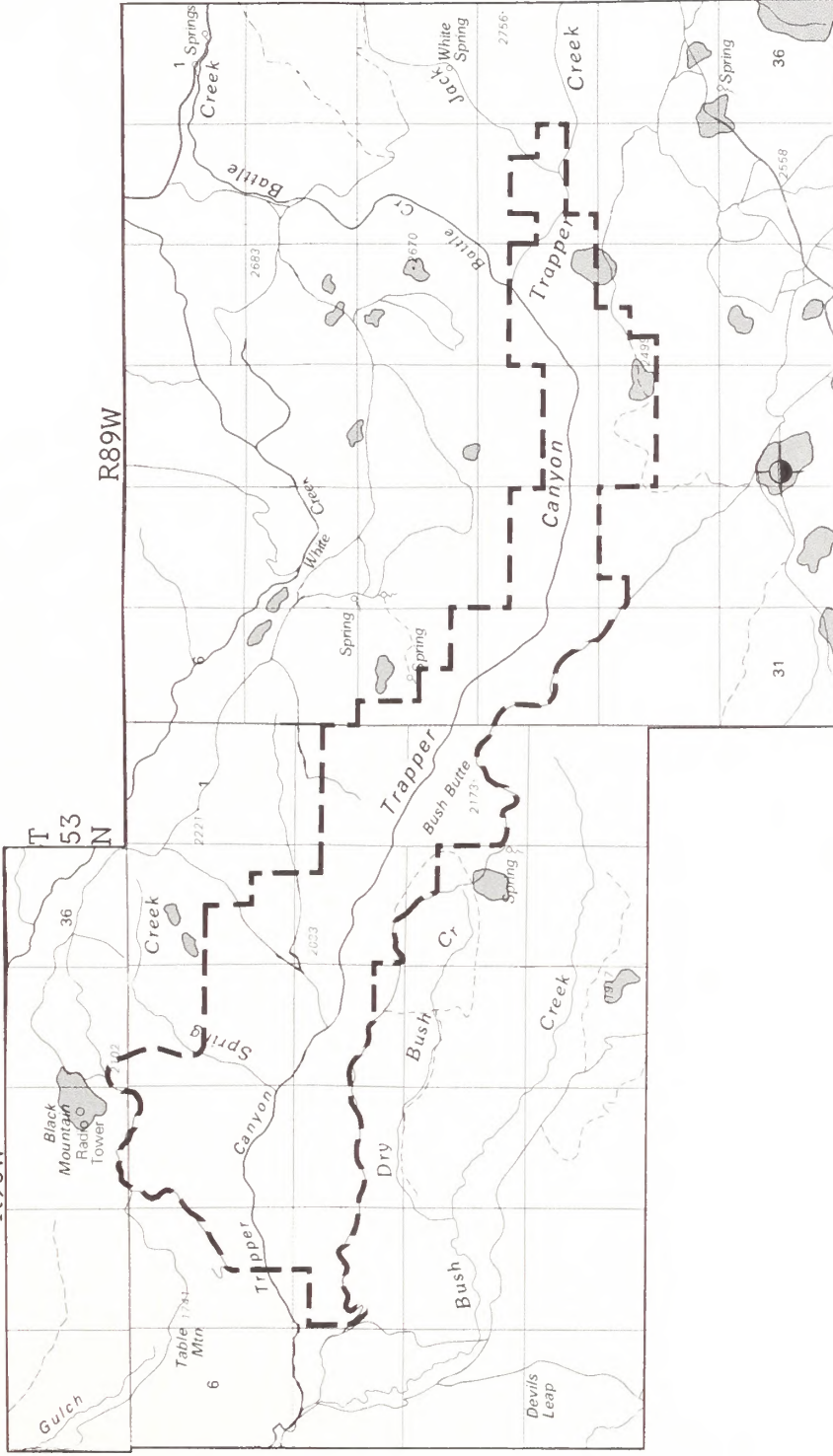
R90W

T 53 N

T 52 N

R89W

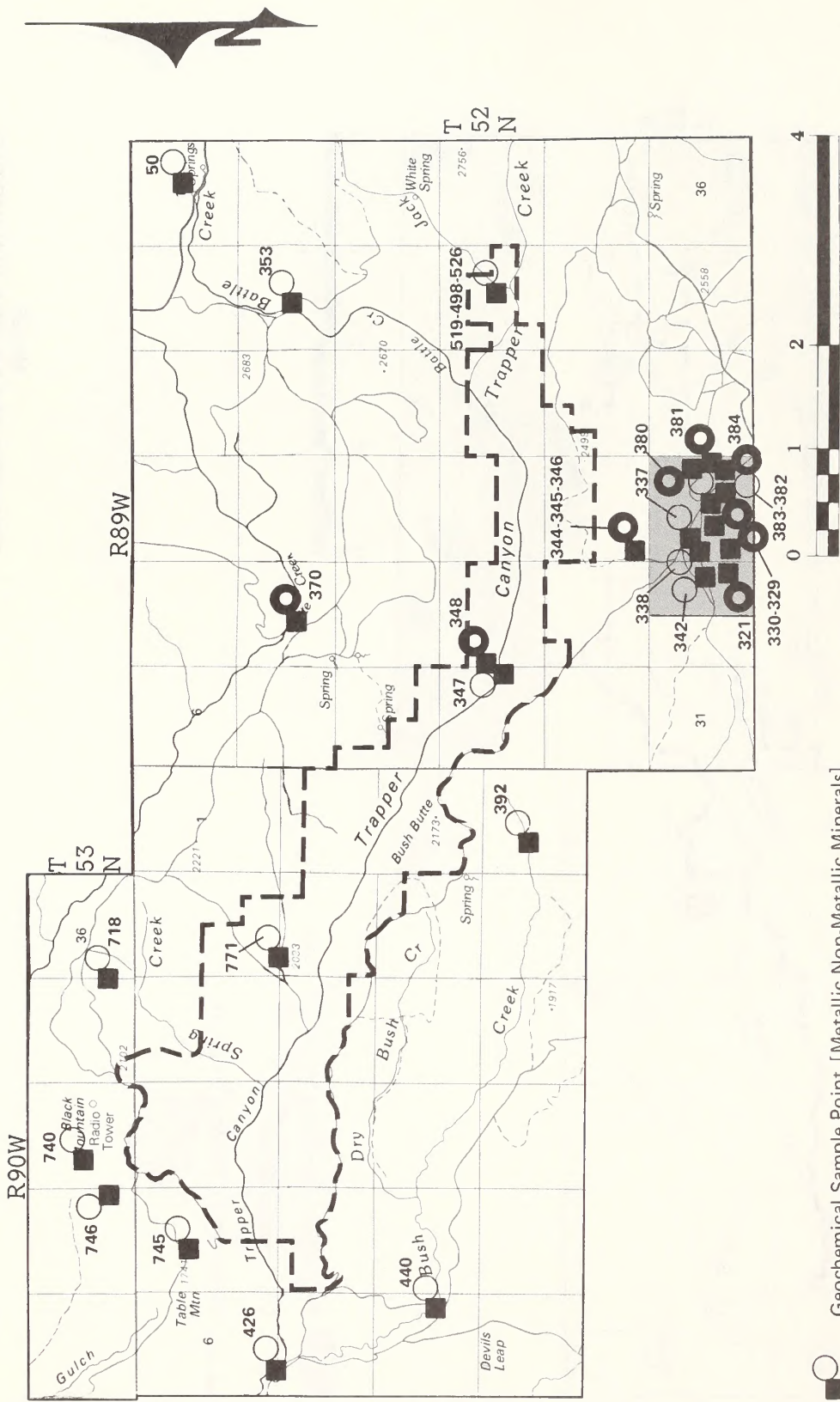
T 52 N

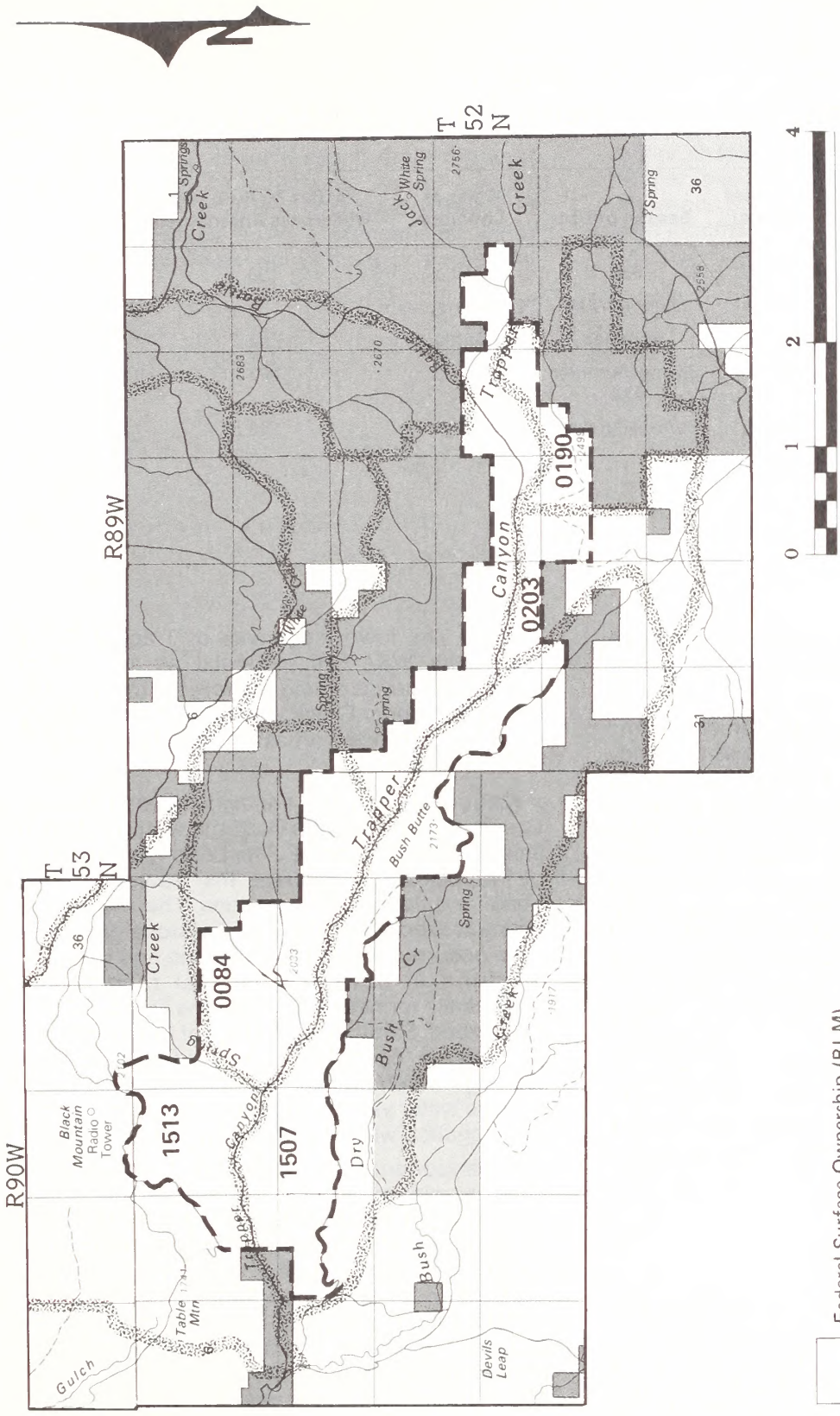


Potentially Recoverable Tar Sand Deposit

Dry Hole (Oil Show)

Wilderness Study Area Boundary





Map 38
TRAPPER CREEK WSA (WY-010-242)
 Grazing Allotments

AFFECTED ENVIRONMENT - TRAPPER CREEK

TABLE 12
TRAPPER CREEK LIVESTOCK GRAZING ALLOCATIONS

Allotment Name	Allotment Number	Season of Use	Class of Livestock	AUMs by No & All Wilderness Alternatives
Trapper	0084	Fall	Cattle	108
Turner Pasture	0190	Summer/Fall	Cattle/Horses	32
Tobes Pasture	0203	Summer	Cattle	93
Mountain	1507	Spring/Summer Fall	Cattle	223
Black Mountain	1513	Spring/Summer	Cattle	42

All five allotments in the Trapper Creek WSA have been initially classified as "I" category allotments.

The potential for forage improvement in the grazing allotments that are included in the study area is quite high, however, most of the area that is included in these study area itself is steep rugged terrain that has limited potential for improving current livestock forage production. There is a sagebrush control project proposed in the Trapper Creek (0084) Allotment. Sagebrush on about 400 acres is scheduled to be controlled through use of a prescribed fire. The proposed site is located in T. 52 N., R. 90 W., Sections 1 and 2. No other range improvement projects are scheduled at this time.

Current ecological range condition in the study area was determined by a recent BLM range site mapping effort. Range conditions for the Trapper Creek WSA are rated as 20 percent excellent, 55 percent good, 10 percent fair, and 15 percent was classified as woodland or rock outcrop.

Water Resources

The Trapper Creek WSA receives 10 to 18 inches of precipitation annually. Thirteen miles of intermittent/perennial segments of Trapper Creek are contained within the WSA boundaries. The intermittent segments of Trapper Creek are confined to the upper three to four miles of the stream within the WSA. These stream segments encounter karst topography which creates conditions favorable for sink holes that allow rapid transport of surface water into the ground water

system. The lower segments of Trapper Creek within the WSA are perennial as a result of numerous springs emerging from the channel and banks of Trapper Creek. The springs are possibly charged by the karst areas topographically higher in the drainages.

Karst characteristics are evident when Trapper Creek encounters formations which contain limestone and dolomite. The underlying geology of Trapper Creek includes the Madison, Three Forks and Jefferson formations. The Madison is characterized by blue to grey limestone. Solutions have occurred within the limestone and dolomite resulting in caves of regional recreational importance formed underneath the Trapper Creek stream bed. Solutional openings of this magnitude also create conditions for rapid groundwater recharge which is important for the maintenance of large water yielding flowing artesian municipal and irrigation wells that serve the Big Horn Basin.

The importance of areas that recharge aquifers of economic importance was recognized within the Big Horn Basin 208 Water Quality Management Plan, which forwarded the following recommendation: "Timber harvesting, mineral exploration or any other potentially polluting activity which occurs on outcrop areas of the Madison, Tensleep, Flathead or other geologic formations which produce substantial quantities of groundwater be closely monitored by the appropriate land managing agency or landowner. These formations supply groundwater to wells in many parts of the Basin and recharge areas should be well protected from potential degradation from drilling products, salinity, nitrates, pesticides or other toxic material. . . ."

AFFECTED ENVIRONMENT - TRAPPER CREEK

Water quality of Trapper Creek within the boundaries of the WSA can be described as excellent, and is generally representative of pristine mountain streams which drain the west slope of the Bighorn Mountains. Typically, water within the WSA is low in dissolved solids and suspended sediments. As a comparison, water within Trapper Creek would meet or exceed all

drinking water standards or criterion with the exception of bacteriological contaminants. Discharge within the perennial segments of Trapper Creek is estimated to be 10 to 15 cubic feet per second (CFS) during later summer months and 300 to 350 CFS during the peak snow runoff months.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter analyzes the expected impacts and environmental consequences of implementing the different wilderness alternatives. These impacts are summarized in Tables 2 through 6 of Chapter 2.

Each alternative identified in Chapter 2 for each WSA is analyzed in this chapter in terms of the resource elements discussed in Chapter 3. The following resources would not be significantly affected in any of the five WSAs under any of the alternatives analyzed: air quality, prime and unique farmlands, and wild or scenic rivers. Development activities such as road, pipeline, well pad, reservoir, fence construction and timber harvesting activities associated with the No Wilderness Alternative have potential to adversely affect floodplains, but these impacts will be considered at the time of the project specific environmental analysis. Areas of Critical Environmental Concern (ACEC) are located within the Medicine Lodge and Trapper Creek WSAs. Wilderness suitability recommendations resulting from this EIS are not expected to affect these ACECs.

The following assumptions were used to provide a standard framework for impact analysis and comparison among alternatives.

1. Management actions on WSAs not recommended for designation as wilderness, are based on a most likely to occur scenario, existing and proposed management plans and applicable laws and regulations.
2. Management actions on WSAs recommended for designation as wilderness would be in accordance with the BLM's "Wilderness Management Policy" and the Wilderness Act of 1964.
3. Until a congressional decision is reached on wilderness designation or nondesignation, the WSAs will continue to be managed to protect their wilderness character as required by the FLPMA and the BLMs "Interim Management Policy and Guidelines for Lands Under Wilderness Review."

Any unavoidable adverse impacts, irreversible/irretrievable resource commitments, and short-term use versus long-term productivity are identified in the discussion of the appropriate resource rather than in separate sections.

IMPACTS COMMON TO THE NO WILDERNESS ALTERNATIVES

Potential activities associated with the No Wilderness Alternatives could affect archeological sites and soil productivity. These affects are described for all WSAs in the following paragraphs and will not be analyzed further.

Surface disturbing activities could cause increased direct and indirect impacts to cultural values. Direct impacts could result from development projects, indirect impacts could occur from increased access. Both types of impacts would be minimized through avoidance and mitigation measures but the potential for damage would continue to exist. Cultural resource information would increase as a result of inventories conducted prior to allowing development proposals to occur.

Surface disturbing activities could compact soils and cause accelerated soil erosion. In the Honeycombs, Cedar Mountains and Alkali Creek WSAs accelerated erosion could result in approximately 80 tons of soil/acre/year to be displaced during active construction and up to 15 tons/acre/year for unreclaimed construction projects. The rough topography and characteristics of these soils would severely limit reclamation success, prolonging these impacts. In the Medicine Lodge and Trapper Creek WSAs active construction impacts could cause up to about 60 tons/acre/year of soil erosion and unreclaimed sites could lose up to 10 tons annually.

The impacts of accelerated erosion would be reflected in reductions in vegetative productivity and sedimentation of drainages. Channel stability and water quality would be expected to decline.

ENVIRONMENTAL CONSEQUENCES - HONEYCOMBS

HONEYCOMBS

Honeycombs No Wilderness Alternative (Proposed Action)

Effects on Wilderness Values

The oil and gas development scenario in Chapter 2 for the Honeycombs WSA was analyzed in an effort to quantify impacts to wilderness values. Approximately 56 acres of surface disturbance is expected within the area. Short- and long-term adverse effects on wilderness values would be likely. These adverse effects would be mainly associated with the access roads developed for exploration and development of oil and gas.

Exploratory drilling for oil and gas would be almost certain to occur and if successful would be followed by production. Special protective stipulations would prevent unnecessary and undue degradation of the area. However, there is a significant probability that the natural character of the WSA would gradually be replaced by roads, facilities, and the sights, sounds and smells of oil and gas exploration within the WSA.

The effects of oil and gas exploration on naturalness would depend on the success of reclamation; the impacts generally would be long-term. Any large scale development would have a severe impact on wilderness values.

Opportunities for solitude and primitive unconfined recreation would be severely reduced and in the long-term probably eliminated.

Visual quality (i.e., form, line, color, texture) would be affected by the expected mineral development on lands in the WSA. Most impacts would be short-term; however, long-term impacts might result if reclamation is unsuccessful.

Wilderness values would be slightly affected in the long-term by construction of facilities. These effects would decrease over time with the return of vegetation. Long-term or permanent projects would have a slight effect on visitors' ability to experience naturalness.

The use of motorized vehicles would cause vehicle ruts and minor damage to vegetation. The noise and sight of vehicles would reduce visitors' opportunities to experience solitude. The ORV designation limiting vehicle travel would be partially effective in preventing damage to unroaded areas.

Conclusion: Over the long-term (50 years) activities such as mineral exploration and development, and ORV use will result in a loss of most if not all wilderness values.

Effects on Recreation Use and Quality

It is expected that nondesignation of the Honeycombs WSA would lead to an increase in improved access (approximately 4.5 miles of new road) and would enhance opportunities for vehicle oriented recreation activities. Road construction associated with mineral exploration and development will make the area increasingly more accessible year-round.

The environment for recreation in the WSA would change under this alternative. Recreationists currently see little evidence of other users of other resources. Mineral related development would expand the existing road and trail system beyond the demand by recreation. Acreage within motorized recreation opportunity classes would increase. Hunting would still occur, but mineral development activities would result in lower wildlife numbers and the quality of the hunt could be affected considerably (see Chapter 4, Honeycombs No Wilderness Alternative, Effects on Wildlife Populations for further discussion of impacts).

The scenic and wildlife resources that currently attract recreation use have potential to be severely affected by activities associated with the development of leasable minerals.

Conclusion: The semi-primitive nonmotorized recreation opportunity now available would change to a semi-primitive motorized opportunity class as mineral exploration and development progresses. Virtually no change in recreation use levels would be expected.

Effects on Wildlife Populations

Expected mineral development would result in significant long-term impacts to resident wildlife, i.e., a displacement of approximately two mule deer and six antelope per year during development activity because habitat would be destroyed or become functionally unavailable. This loss of habitat will require more intensive management of remaining habitat in order to maintain Wyoming Game and Fish Department Strategic Plan goals for population numbers.

No effects on threatened and endangered species are expected as a result of this action because no T&E species are known to exist (BLM, Biological Assessment, 1986).

ENVIRONMENTAL CONSEQUENCES - HONEYCOMBS

Effects on Mineral Exploration and Production

Mineral leasing and development would occur subject to lease stipulations. The most likely to occur oil and gas development scenario identified in Chapter 2, has indicated that approximately eight exploratory wells will be drilled within the next 50 years. Each of these wells has approximately 14 percent chance of developing into a producing well. A producing well could result in a field of unknown extent being developed.

No coal development is anticipated therefore this alternative would have no effect on the coal resource. The same is true for the locatable minerals, no effect is anticipated.

Conclusion: There would be no impacts on oil and gas resources development resulting from this alternative because surface disturbance lease stipulations are already in effect and their impacts have been accounted for in the Oil and Gas Lease Environmental Assessment on file in the District Office. No effects are anticipated on coal or locatable minerals.

Effects on Livestock Grazing and Management

Existing livestock grazing use would continue at the current 1,503 AUM level. Increased access resulting from mineral exploration is expected to facilitate gathering, transporting and periodic inspections of livestock. In the long-term, a slight decrease in forage may result from mineral development activity. Operating costs would not be expected to change as a result of non-designation.

Conclusion: Livestock grazing would remain basically the same as it is today.

Effects on Water Quality

The No Wilderness Alternative is expected to result in short- and long-term accelerated soil erosion from oil and gas exploration and development. The result of mechanized activities would be an increase in sediment loads received by the East Fork of Nowater Creek. Expected oil and gas exploration would add an additional 150 tons of sediment to the Bighorn River. Increased sedimentation would be inconsistent with federal, state, and county efforts to reduce sediment delivery to the Bighorn River from this drainage. If an oil field does develop it is possible that produced water would be discharged into presently existing ephemeral stream channels which drain into the Bighorn River. The produced

water would probably be more saline than the receiving Bighorn River. High salinity concentrations in water are not desirable for application on irrigated croplands and may be toxic to certain species of fish wildlife and domestic livestock. Long-term produced water discharges would alter channel characteristics by encouraging emergent and submergent aquatic vegetation thus increasing channel stability, and therefore, decreasing channel erosion.

Conclusion: Mineral development activities could result in degradation of water quality through increased salinity, increased sediment loads by 150 tons in the Bighorn River, while improving stream stability through increased wetland vegetation.

Honeycombs All Wilderness Alternative

Effects on Wilderness Values

Wilderness values in the Honeycombs WSA representing the Sagebrush Steppe ecosystem would receive long-term protection through wilderness designations. Impacts on wilderness values have potential to occur from pre-FLPMA leases, however, development of these leases is not anticipated.

Effects on Recreation Use and Quality

Motorized vehicle access into the Honeycombs WSA would be restricted except in special circumstances such as emergencies and for approved grazing management activities. Motor vehicle use for recreational purposes would be allowed only on boundary roads. This would result in a decrease in visitor use within the WSA from hunters accustomed to driving off-road to hunt. However, existing use is low and numerous roads and trails outside of the WSA provide extensive opportunities for off-road vehicle oriented hunting.

Short and long-term visitation may increase as a result of publicity associated with the wilderness designation process.

If development of existing oil and gas leases does not occur, primitive recreation within the WSA would remain unchanged. Hunting and sightseeing would continue to be the largest recreational use of the WSA. All types of wilderness compatible nonmotorized recreation including walk-in hunting, hiking and sightseeing would be enhanced.

ENVIRONMENTAL CONSEQUENCES - HONEYCOMBS

Conclusion: Significant changes in recreation use levels are not expected. The quality of the primitive recreation resource would remain high.

Effects on Wildlife

Wildlife habitat, and mule deer and antelope populations would be protected from mineral exploration/production activities (seismic exploration, road, pipeline and well pad construction) and vehicle use.

Conclusion: Over the long-term, most of the areas wildlife habitat would be preserved intact and wildlife populations would remain stable. Threatened and endangered species would not be affected because no threatened or endangered species are known to exist (BLM, Biological Assessment, 1986).

Effects on Livestock Grazing and Management

Livestock grazing would continue at current levels, while the special considerations for range project maintenance and the restrictions on access would increase the cost of operation by as much as 25 percent for permittees running livestock within the wilderness area. This increase in operating costs is associated with special materials, extra time and equipment needed to conduct work as a result of restrictions on motorized vehicle use in the designated area.

Effects on Mineral Exploration and Production

Mineral resources on 21,000 acres would not be available for leasing, exploring or development. Development of the five existing pre-FLPMA leases probably would not occur since these leases expire this year if extensions are not granted. Due to wilderness protection requirements imposed as a result of designation, the costs for exploration or development of post-FLPMA leases within the WSA would be higher than costs for exploration of leases outside the designated area. Post-FLPMA leases would not be reissued upon expiration. The oil and gas development scenario described in Chapter 2 would not occur.

No coal is being mined and none is expected to be mined in the near future. Cumulatively, an estimated 3 percent (1,935,000 tons) of the coal resources in the Washakie Resource Area would be unavailable for production. No mining claims exist in the WSA and no locatable mineral development is expected therefore no effect is anticipated.

Conclusion: This alternative could adversely impact oil and gas exploration and production, since long-term opportunities would be forfeited.

Effects on Water Quality

Watershed conditions would benefit from restrictions on surface disturbing activities. Accelerated soil erosion and sedimentation would be avoided because soils would not be disturbed. Produced water discharges would not occur because oil fields would not be developed. Salinity would not change because there would be no produced water to be discharged. However, without produced water wetland vegetation would not be expected to improve.

Conclusion: There would be little or no change in existing water quality and quantity.

Honeycombs Wilderness Enhancement Alternative

Effects on Wilderness Values

This alternative would maximize the capability of the Honeycombs to provide primitive recreation opportunities, and protect wilderness values on 1,036 acres that would not receive such protection under the All Wilderness Alternative. These additional lands exhibit the same natural character as the lands included in the existing WSA.

Conclusion: Potential problems associated with development of mineral resources on adjacent state lands would be avoided. Primitive recreation opportunities, wildlife populations, water quality and wetland habitat would be afforded a higher degree of protection than under the other alternatives. The boundary resulting from this alternative would be readily identifiable making the designated areas much easier to manage.

Effects on Recreation Use and Quality

Recreation use would not differ significantly from that which would occur under the All Wilderness Alternative. Approximately 1 mile of vehicle trail would be closed but vehicle travel would still be allowed along the boundary. Future vehicle use would most likely shift to an area outside of the designation boundary.

Hunting and sightseeing would continue to be a major activity. The quality of the recreation

ENVIRONMENTAL CONSEQUENCES - CEDAR MOUNTAIN

experience would remain unchanged from present due to restrictions placed on mineral related development.

Conclusion: In the long-term (50 years and beyond) opportunities for a primitive recreation experience would be preserved on 22,036 acres.

Effects on Wildlife

This alternative will provide improved security for wildlife in the Honeycombs area. The threat of habitat disturbances from surface disturbing activities occurring on adjacent state and split estate lands would be reduced. A long-term displacement of approximately 10 mule deer and 5 antelope on adjacent state and split estate lands may be avoided as a result of the selection of this alternative and assuring the preclusion of surface disturbing activities.

Conclusion: All wildlife, especially game species, would benefit from assured security on 22,036 acres, (1,036 more than in the All Wilderness Alternative).

Effects on Livestock Grazing and Management

Livestock use would remain basically the same as it occurs today. Current use levels would continue restrictions on motorized vehicles would apply on 22,036 acres. The anticipated cost of operation increase would be the same as for the All Wilderness Alternative.

Effects on Mineral Exploration and Production

Mineral resources on 22,036 acres would not be available for leasing, exploring or development. Existing oil and gas leases on lands to be acquired would constitute valid existing rights. When these leases expire, they would not be reissued, therefore, there would be an additional loss of land available for mineral development purposes.

Conclusion: Valid existing rights associated with mineral leases on state and split estate lands to be acquired would be honored. When lease expiration occurs, future opportunities for development would be precluded.

Effects on Water Resources

There would be little or no change in existing water quality or quantity.

CEDAR MOUNTAIN

Cedar Mountain No Wilderness Alternative (Proposed Action)

Effects on Wilderness Values

Approximately 63 acres of surface disturbance is expected within the WSA. This surface disturbance would be associated with oil and gas exploration (wildcat wells). Exploratory drilling for oil and gas would be almost certain to occur and, if successful, would be followed by production. Special protective stipulations would prevent unnecessary and undue degradation of the area. However, the natural character of the WSA would gradually be replaced by roads, facilities and the sights, sounds and smells of oil and gas activities.

Visual quality (i.e., form, line, color, texture) would be degraded by the expected mineral development. Most impacts would be short-term; however, long-term impacts might result from unsuccessful reclamation.

The maintenance of range projects would degrade naturalness until the area is revegetated. The use of motorized vehicles would cause vehicle ruts and minor damage to vegetation. The noise and sight of vehicles within the WSAs would reduce visitors' opportunities to experience solitude. An ORV designation limiting travel to designated roads would prevent damage to unroaded areas.

Conclusion: Over the long-term (50 years) activities such as mineral exploration and development would result in a total loss of all wilderness values.

Effects on Recreation Resources

An increase in access would enhance opportunities for vehicle oriented recreation activities. Road construction associated with mineral exploration and development would make the area more accessible year-round.

The recreation experience in the Cedar Mountain WSA would change. Acreage within the motorized recreation opportunity class would increase. Hunting would still occur but mineral development would reduce wildlife populations. The quality of the hunt could be affected considerably.

Conclusion: In the long-term (50 years) development would change most 17,331 acres of

ENVIRONMENTAL CONSEQUENCES - CEDAR MOUNTAIN

semi-primitive nonmotorized recreation opportunity now available to a semi-primitive motorized opportunity class.

Effects on Wildlife

Impacts to wildlife would result from mineral exploration/production activities (seismic exploration, road, pipeline and well pad construction) and vehicle use. These surface disturbing activities have potential to displace and stress mule deer and bald eagle populations, remove habitat from productivity and increase accessibility for the general public. An annual displacement of approximately five mule deer could be expected to occur due to loss of habitat. This loss of habitat will require more intensive management of remaining habitat in order to maintain mule deer population goal objectives.

Water development could occur enhancing habitat for some wildlife (mule deer and chukar) species.

Conclusion: Surface disturbances would affect wildlife habitat quality and quantity potentially resulting in lower mule deer populations. Bald eagle habitat would be disturbed causing a loss of existing bald eagle hunting territory (BLM Biological Assessment, 1986).

Effects on Livestock Grazing and Management

Existing livestock grazing use and management practices would continue at the current levels. Increased access would reduce operating costs for livestock management and facilitate gathering, transporting, and periodic inspections of livestock. In the long-term, a slight decrease in forage may result from mineral development activity.

Conclusion: The use and management of livestock would remain basically the same as it is today.

Effects on Mineral Exploration and Production

It is expected that approximately nine exploratory wells would be drilled within the next 50 years. Each of these wells has approximately 14 percent chance of developing into a producing well. A producing well could develop into a field of unknown extent.

Conclusion: Since there are already lease stipulations in effect, there would be no additional impacts on mineral resources.

Effects on Water Quality

Surface disturbing activities related to oil and gas exploration and production would cause accelerated soil erosion and increased sediment loads. Although surface disturbance would be regulated through lease stipulations and standard reclamation procedures; complete reclamation to pre-disturbed conditions could take decades.

If produced water is discharged, salinity may increase in receiving perennial streams. High salinity concentrations in water are not desirable for application on irrigated croplands and may be toxic to certain species of wildlife and domestic livestock. These discharges would gradually alter the semi-arid character of the drainages by promoting emergent and submergent aquatic vegetation, thus creating wetlands and channel stability. Increases of sediment and salinity would probably be insignificant but are inconsistent with efforts to improve water quality.

Conclusion: Produced water discharges from oil development activities could degrade water quality but may also increase wetland vegetation.

Cedar Mountain All Wilderness Alternative

Effects on Wilderness Values

Wilderness values would be protected through wilderness designation; even though some small impacts on wilderness values would occur.

Three pre-FLPMA leases totaling 1,520 acres could be developed. Most leases issued after the passage of FLPMA contain a stipulation which allows exploration and development only if wilderness values would not be adversely affected. Oil and gas leases run for 10 years but are extended if drilling or production is in progress. Pre-FLPMA leases in the WSA vicinity will lapse after 10 years (on or before October 21, 1986) unless activity occurs and they are extended. Development on these leases is not anticipated.

If oil and gas activities occur on the state land (Section 36) that is almost surrounded by the WSA, outstanding opportunities for solitude would be affected. If development occurs on Section 36, the sights, sounds and smells of oil and gas activity could be very apparent from within much of the WSA. The impacts of exploration would be short-term, but if production occurs, they could continue for many years.

ENVIRONMENTAL CONSEQUENCES - CEDAR MOUNTAIN

Livestock grazing and associated activity including vehicle use would have only minimal impacts.

Effects on Recreation Resources

Motor vehicle use for recreational purposes would be allowed only on boundary roads. This would result in a slight decrease in visitor days within the WSA from hunters accustomed to driving off-road to hunt; however, the loss of hunter days would be recovered in areas adjacent to the WSA.

Short- and long-term visitation within the Cedar Mountain WSA would be expected to increase slightly. This increase in local visitor use would probably result from publicity associated with the wilderness designation process.

Primitive recreation within the WSA would remain unchanged. Hunting and sightseeing would continue to be the largest recreational use of the WSA. Maximum protection of the quality of primitive recreation in the WSA would result from management under wilderness designation and from prohibition of vehicle use on 21,570 acres. Thus, wilderness designation under this alternative would protect the primitive recreational opportunities in the WSA.

Designation would provide protection for public lands adjacent to the Bighorn River. These river tracts would be established as the only areas along the Bighorn River in Wyoming that provide wilderness oriented recreation opportunities.

Conclusion: Short- and long-term recreation use levels in the Cedar Mountain WSA may increase under the All Wilderness Alternative. The quality of the recreation resource would remain high.

Effects on Wildlife

This alternative would eliminate the threat of future mineral leasing, exploration and development of vehicular access. This would maintain wildlife habitat quality and quantity to ensure long-term population levels desirable in the Cedar Mountain area.

Wildlife stress may result due to increased visitor use. However, anticipated levels of wilderness recreation use should not significantly affect wildlife. If significant effects did occur, recreation

use would be regulated through visitor use restrictions incorporated in the Wilderness Management Plan.

Effects on Livestock Grazing and Management

Under the All Wilderness Alternative, livestock grazing would continue at current levels. Grazing management on the allotments in the wilderness area would be affected by the requirements for special materials and/or design requirements for maintenance of existing range projects and by restrictions on the use of motorized vehicles.

The special restrictions on range project maintenance and the restrictions on vehicle access would result in an approximate 25 percent increase in the cost of operation within the wilderness area.

Effects on Mineral Exploration and Production

This alternative will remove 21,570 acres of high oil and gas potential lands from standard exploration practices and eliminate the possibility of development of these resources. The present oil and gas leases would expire as the lease termination dates were encountered and would not be reissued. Cumulatively, the removal of these acres from potential production represents 6 percent of the total oil and gas resources available within the Washakie Resource Area. The development scenario described under the No Wilderness Alternative would not occur.

Conclusion: Annual rental payments and potential royalties from oil and gas production would be lost.

Effects on Water Quality

Designation of the Cedar Mountain WSA would protect fragile soils from mechanical disturbances resulting in a potential benefit to watershed conditions. Accelerated soil erosion would be avoided and, sediment loads originating from surface disturbances in the area would be less likely to occur. Produced water discharges would not occur. Salinity would not be increased in receiving perennial water and new wetland habitat would not be created.

Conclusion: There would be little or no change in existing water quality and quantity.

ENVIRONMENTAL CONSEQUENCES - MEDICINE LODGE

Cedar Mountain Wilderness Enhancement Alternative

Effects on Wilderness Values

This alternative would maximize the Cedar Mountain area's capability to provide opportunity for solitude and would protect wilderness values on 601 acres that would not receive such protection under the All Wilderness Alternative. These additional lands exhibit the same natural character as the lands included in the existing WSA.

Conclusion: The loss of opportunities for solitude associated with development of minerals on adjacent State of Wyoming lands would be avoided.

Effects on Recreation Resources

Recreation use would not differ significantly from that which would occur under the All Wilderness Alternative. Vehicle related recreation access would be denied on approximately 1.5 miles of vehicle trails on these additional lands. The significance of this localized effect would be minimal because essentially the same vehicle oriented recreation opportunities are available on other public lands in the vicinity.

Conclusion: Wilderness designation would preserve primitive recreation opportunities for long-term use on 22,171 acres.

Effects on Wildlife

This alternative will provide improved security for wildlife in the Cedar Mountain area. The threat of habitat disturbances from activities occurring on adjacent state lands would be eliminated. All wildlife, especially game animals would benefit in the long-term from improved security. Potential bald eagle nesting sites and existing eagle hunting territory would receive long-term protection.

Effects on Livestock Grazing and Management

There would be no change from the current situation. Livestock grazing would be managed as described in the Affected Environment. Special restrictions on range project maintenance and the restrictions on vehicle access would result in a slight increase in operating costs within the WSA.

Effects on Mineral Exploration and Production

Mineral resources on 22,171 acres would not be available for leasing, exploring or development. Existing oil and gas leases on lands to be acquired would constitute valid existing rights. When these leases expire, they would not be reissued, therefore, there would be an additional loss of 601 acres of land available for mineral development purposes under the wilderness enhancement alternative.

Conclusion: Valid existing rights associated with mineral leases on state lands to be acquired would be honored. When lease expiration occurs future opportunities for development would be precluded.

Effects on Water Resources

The effects of this alternative on water quality would be essentially the same as for the All Wilderness Alternative. There would be little or no change in existing water quality or quantity.

MEDICINE LODGE

Medicine Lodge No Wilderness Alternative (Proposed Action)

Effects on Wilderness Values

It is expected that this alternative will not have significant short-term effects on wilderness values in the Medicine Lodge WSA. This is largely due to the low to moderate potential for mineral resource development within the area. Existing uses such as livestock grazing and nonwilderness recreation activities would continue as they have in the past.

An exception to these effects may occur if it becomes feasible to develop the potential tar sand deposits located in the area. The likelihood of this occurring is low. The combination of an onsite tar sand mining operation and development of improved access into the area would have long-term adverse effects on wilderness values. Stipulations would most likely only allow these activities to occur on the uplands areas, so naturalness and outstanding opportunities for solitude would be retained within Medicine Lodge Canyon.

ENVIRONMENTAL CONSEQUENCES - MEDICINE LODGE

Low potential exists for the discovery of oil and gas in the WSA. The existing post-FLPMA leases issued within the area would permit development of the oil and gas resources while providing for protection of other resource values such as wildlife habitat, visual resources or watershed through a "no surface occupancy" lease stipulation in effect for 70 percent of the WSA.

The standard and special stipulations (see Chapter 2) under which development could proceed would be directed primarily at site location, season of use, and road construction. Special stipulations would minimize impacts on wilderness values from oil and gas development. However, any development would result in a short-term impairment of the naturalness of the affected area.

Up to 10 years would be required before road and pad areas would be reclaimed to the point that the disturbance was substantially unnoticeable. If reclamation was not totally successful, there might be some small long-term effects on naturalness.

Developing springs and improving range condition through brush control would significantly affect naturalness in the WSA. These effects would decrease over time with the return of vegetation.

The use of motorized vehicles would cause vehicle ruts and minor damage to vegetation. The noise and sight of vehicles within the WSA would affect a visitors' opportunity to experience solitude. Off-road vehicle (ORV) regulations to be designated as part of the Washakie RMP effort would close vehicle use on 1,600 acres and limit vehicle travel within the remaining WSA to designated roads and seasons of use.

The use of mechanized equipment for fire suppression has the potential to affect the natural values of the WSA. This loss would be most apparent in the uplands where the use of dozers for fire suppression is currently permissible. Fire line construction and the use of chemical fire retardant could cause long-term impacts on naturalness.

The wilderness values on 432 acres of commercial forest land in the WSA would be adversely affected in the long-term by timber development. Some of this commercial forest land is currently not accessible due to steep slopes but is expected to become more available as technology for logging systems improves in this region. Logged areas would be most evident in the short-term but evidence of logging would be a long-term impact.

Conclusion: Existing wilderness values found in Medicine Lodge Canyon are expected to be maintained. Timber harvesting in the Captain Jack Creek drainage would result in long-term degradation of wilderness values. The combination of low oil and gas potential and steep canyon topographic features would limit mineral exploration to upland areas, if it was to occur.

Effects on Recreation Use and Quality

Nondesignation of this area would lead to an eventual increase in improved access in Captain Jack Creek drainage. This would enhance opportunities for vehicle oriented recreation activities. Overall recreation use levels would be expected to remain near current levels.

Timber harvesting could increase game populations through increased forage in the short-term. This may result in improved hunter success. However, if timber harvesting activities are allowed to occur during hunting seasons, hunting quality could be adversely affected due to decreased animal numbers in the area.

Conclusion: Visitor use levels are expected to remain about the same. Vehicle access would be available on designated routes above the canyon. Recreation resources in Medicine Lodge Canyon would be managed to provide dispersed semi-primitive nonmotorized opportunities. No recreation use facilities would be developed.

Effects on Wildlife

This alternative would allow valuable wildlife cover including thermal cover on crucial winter range and calving habitat for elk and deer to be lost through timber harvests. This cover type would be replaced by younger timber stands for 40 to 50 years, until thermal cover characteristics regain. Wildlife would be stressed during harvest activity resulting in habitat degradation. Tar sand development may affect bald eagle habitat (BLM Biological Assessment, 1986).

Conclusion: Crucial winter range habitat for elk and mule deer could be lost. Bald eagle hunting territory could be disturbed.

Effects on Timber Production

The 432 acres of commercial forest land in Medicine Lodge WSA would remain in the timber harvest base under the No Wilderness Alternative. The timber stands identified suitable for forest management within the WSA would be brought

ENVIRONMENTAL CONSEQUENCES - MEDICINE LODGE

into a more productive, regulated condition through the application of timber harvests, thinning, planting, and other intensive forest management practices.

Approximately 170 acres of noncommercial forest land (woodlands) would remain in the timber base. Options for the management of these woodlands would remain open.

Conclusion: No irreversible adverse impacts on development of the forest resources would result from not designating the Medicine Lodge WSA as wilderness.

Effects on Livestock Grazing and Management

Livestock grazing will continue to be authorized at current levels or adjusted to meet the range management objectives as discussed in Chapter 3, Affected Environment. Motor vehicle access would be limited to designated roads and trails on the Medicine Lodge Allotment (0143). This level of vehicle restriction would not effect livestock management and range project maintenance. Increased access through timber harvests in the Captain Jack drainage would facilitate gathering, transporting and periodic inspections of livestock. A slight increase in forage may result from timber harvesting within the area.

Effects on Mineral Exploration and Production

Oil and gas leasing would continue to occur on 6,140 acres. No leasing would be allowed on 1,600 acres recommended for ACEC designation. Due to low oil and gas potential, and a no surface occupancy stipulation effective on 70 percent of the area, it is unlikely development will follow any leasing.

Conclusion: There would be a slight loss of available mineral resources resulting from the Spanish Point Karst ACEC recommendation. This loss would be less than withdrawing mineral values on all 7,740 acres under the All Wilderness Alternative. Development of the potential tar sand deposit could still occur.

Effects on Water Quality

Water resources in 1,600 acres of the proposed Spanish Point Karst ACEC would be protected. Intensive management efforts would be required on the remaining 6,140 acres in order to maintain the excellent water quality now existing in Medicine Lodge Creek. Several surface disturbing and chemical land treatments including logging and associated activities, tar sand mining, oil and

gas exploration and development, and application of silvicultural chemicals and pesticides, could occur within or immediately outside of the WSA boundary. Surface disturbing activities can potentially result in, accelerated soil erosion and, ultimately, additional sediment loading of Medicine Lodge Creek. Chemical pollutants could enter the groundwater system through Medicine Lodge Creek and would be permanently trapped until withdrawn by downslope wells.

Conclusion: Water quality would be protected within the most critical areas of concern. The possibility would still exist for pollutants and sedimentation to enter Medicine Lodge Creek from surface and subsurface disturbing activities.

Medicine Lodge All Wilderness Alternative

Effects on Wilderness Values

Wilderness values in the Medicine Lodge WSA representing the Sagebrush Steppe ecosystem would receive long-term protection through wilderness designation. All activities that would impair wilderness values would be prohibited.

Management of wilderness values including opportunities for solitude on the northern portion of the WSA would be difficult even under the All Wilderness Alternative due to the unit's configuration and potential for nonwilderness activities occurring on adjacent state lands.

Effects on Recreation Use and Quality

Motor vehicle use for recreational purposes would be allowed only on boundary roads. This would result in a slight decrease in visitor days within the WSA from hunters accustomed to driving off-road to hunt. All types of wilderness compatible nonmotorized recreation including walk-in hunting, fishing and hiking would be enhanced.

Short- and long-term visitation within the Medicine Lodge WSA would be expected to increase slightly. This increase in visitor use would result from publicity associated with the wilderness designation process. Overall, increased use is not expected to be significant.

Primitive recreation within the WSA would remain unchanged. Hunting, fishing and sight-seeing would continue to be the largest recreational uses of the WSA. Maximum protection of the quality of recreation experience in

ENVIRONMENTAL CONSEQUENCES - MEDICINE LODGE

the WSA would result from management under wilderness designation and from prohibition of vehicle use on 7,740 acres.

Conclusion: Wilderness designation under this alternative would protect the primitive recreational opportunities in the WSA.

Effects on Wildlife

This alternative would promote pedestrian activity in the area but visitor use would not occur during the winter period when the area serves as crucial habitat for elk and mule deer winter range. Timber cover would be retained for wildlife but habitat manipulation, trapping and tagging efforts within the Medicine Lodge Habitat Unit could be hindered.

Wilderness designation would protect the prey base (hunting territory) for bald eagles. (BLM, Biological Assessment, 1986).

Conclusion: Wilderness designation would provide long-term protection for existing wildlife habitat and security for wildlife populations.

Effects on Fisheries

The All Wilderness Alternative will cause an increase in fishing pressure. Initially, the pressure will not exceed the stream's capacity and will only reach that level recommended by the Wyoming Game and Fish Department. However, pressure is anticipated to increase and, in order to maintain an acceptable population of self-sustaining wild trout in Medicine Lodge Creek, Wyoming Game and Fish Department would need to implement restrictive controls to prevent overfishing. The Wyoming Game and Fish Department routinely changes fishing restrictions in order to maintain desirable fish populations.

Conclusion: Fisheries habitat and population levels would receive long-term protection from mineral and forest development. The fishery would be able to maintain itself through natural reproduction.

Effects on Wetlands

Effects of additional human use along the Medicine Lodge Canyon will result in establishment of a single trail paralleling the stream and establishment of campsites in most suitable locations. Since the riparian vegetation along Medicine Lodge Creek is thick, the trail will develop mostly on the south facing slope, where game trails now exist. The foot traffic will not

deteriorate the stream due to the armored nature of the rocky channels. Where campsites develop, some riparian vegetation will be removed for firewood. Captain Jack Creek will probably be used as an access route to Medicine Lodge Creek.

Conclusion: There would be little change in wetland habitat from the existing situation.

Effects on Timber Production

All forest lands (432 acres of commercial forest land and 170 acres of woodlands) within the Medicine Lodge WSA would be subject to natural ecological processes. Timber stands will eventually break down and be subject to a potential increased fire and disease danger. It is anticipated that the stands will be subject to a cycle of 200 to 300 years in which the stand's economic values as forest products will be lost to wildfire and disease. Other resource values within the WSA that are associated with forest cover would also be subject to this type of cycle.

Conclusion: The removal of 432 acres of commercial forest land and 170 acres of woodlands from the timber harvest base would have a small adverse impact on timber production and on the local timber industry. This is based upon approximately 15,000 acres of commercial forest land and 40,000 acres of woodlands in the Washakie Resource Area.

Effects on Livestock Grazing and Management

The All Wilderness Alternative would not affect the existing (1,108 AUMs) level of livestock grazing use. Grazing management within the designated area would be affected by additional restrictions on motor vehicle access and by the requirements for special materials and/or design requirements for maintaining range projects within the designated area. Motor vehicle access would not generally be permitted for routine purposes, such as supplemental feeding, moving livestock or checking range improvements.

Conclusion: Restrictions on access would slightly increase operating costs for permittees running livestock in the wilderness area. Livestock use levels would not change as a result of the designation.

Effects on Mineral Exploration and Production

Mineral resources on 7,740 acres would not be available for leasing, exploring or development. Three existing post-FLPMA oil and gas leases

ENVIRONMENTAL CONSEQUENCES - MEDICINE LODGE

would not be reissued upon expiration. Due to wilderness protection requirements, cost for exploration or development of the post-FLPMA leases in the designated area would be considerably higher than costs for lease activities outside the area. Development of the potential tar sand deposits within the designated area would not occur.

Conclusion: There is potential for adverse impacts to the mineral industry, however, large scale mineral development appears unlikely.

Effects on Water Quality

This alternative would place restrictions on soil disturbing activities such as logging, and mineral exploration and development. This action would protect soils from accelerated erosion and prevent additional sediment loading to Medicine Lodge Creek. Excessive sediment and debris entering the eastern portion of the Medicine Lodge Creek, could plug and seal underground solutional conduits associated with sinking stream segments.

Restrictions on the use of pesticides and herbicides within the WSA would prevent chemical contamination of an otherwise pristine aquatic environment.

The expected increase in activities by humans seeking primitive recreational experiences could create impacts that will increase sediment and bacteriological contamination. Human activity within the WSA will create trails. Compaction of the trails will increase surface runoff and sediment delivery from the trails. The amount of sediment delivered from the trails relative to the sources will be insignificant. Human fecal bacteria contamination of Medicine Lodge Creek may increase as a result of improper disposal of human wastes. This contamination of surface water is of concern due to the possible introduction of pathogenic bacteria.

Designation will not effect water resources within the proposed Spanish Point Karst ACEC. The ACEC and wilderness goals are both consistent in providing water quality protection.

Conclusion: Wilderness designation will provide long-term protection to existing excellent water quality.

Medicine Lodge Wilderness Enhancement Alternative

Effects on Wilderness Values

This alternative would maximize the Medicine Lodge area's capability to provide primitive recreation opportunities. Wilderness values on 2,280 acres would receive protection that would not receive such protection under the All Wilderness Alternative. These additional lands exhibit the same natural character as the lands included in the existing WSA.

Conclusion: The primary benefit to wilderness values derived from this alternative is that it provides a more logical and manageable northern boundary for the designated area.

Effects on Recreation Use and Quality

Recreation use in the Medicine Lodge WSA would not differ significantly from that which would occur under the All Wilderness Alternative. Vehicle related recreation access would be denied on approximately 3 miles of trails within the additional lands to be acquired. The significance of this localized restriction would be minimal because similar vehicle-oriented recreation opportunities are available on other public lands in the vicinity of the WSA.

Effects on Wildlife

This alternative would provide for more buffering of human influence within the area, allowing wildlife to move within the unit without having to leave it. The short-term threat of loss of additional valuable timber cover would also be removed.

Effects on Wetlands

The effect of this alternative on wetlands would be the same as those impacts identified under the All Wilderness Alternative.

ENVIRONMENTAL CONSEQUENCES - ALKALI CREEK

Effects on Timber Production

The effects of this alternative on forest lands would be essentially the same as those identified under the All Wilderness Alternative. A slightly larger area resulting in an additional 200 MBF of timber would not be available for commercial purposes.

Effects on Livestock Grazing and Management

The change in the wilderness area boundary would restrict vehicle use on a trail that is used to reach several livestock water developments and other range projects in the Medicine Lodge (0143) Allotment. Livestock grazing would continue under the current management strategy.

Effects on Mineral Exploration and Production

Mineral resources on 9,706 acres would not be available for leasing, exploring or development. Existing leases on lands to be acquired would constitute valid existing rights. When these leases expire they would not be reissued.

Conclusion: Valid existing rights associated with mineral leases on state lands to be acquired would be honored. When lease expiration occurs, future opportunities for development would be precluded.

Effects on Water Quality

There would be no change in the existing excellent water quality.

ALKALI CREEK

Alkali Creek No Wilderness Alternative (Proposed Action)

Effects on Wilderness Values

Under this alternative most uses and management activities would continue much as they have in the past. Existing uses such as livestock grazing and nonwilderness recreation activities would continue. There are no plans for the development of range or wildlife habitat improvement projects that would significantly affect wilderness values.

New impacts would arise as it becomes economically feasible to develop the potential tar

sand deposits located in the WSA. The tar sand development scenario described in Chapter 2 predicts surface disturbances on 10 acres per year for a minimum of 10 years.

The combination of an on-site tar sand mining operation and development of improved access into the area would have long-term adverse effects on wilderness values. Standard and special stipulations applied to mineral leases would prevent unnecessary and undue degradation, but wilderness associated characteristics would be lost in a substantial portion of the Alkali Creek WSA.

The use of motorized vehicles would cause vehicle ruts and minor damage to vegetation. The noise and evidence of vehicles within the WSA would affect a visitor's opportunity to experience solitude. Off road vehicle regulations would limit vehicle travel to designated roads and trails within the WSA; this would help reduce impacts on wilderness values.

The use of mechanized equipment for fire suppression has the potential to affect the natural values of the WSA. This loss would be most evident if dozers were used to construct fire lines. Long-term impacts on wilderness character would be evident in the vicinity of the fires.

Any development of the woodlands for firewood cutting or cutting for fence posts would have small impacts on the naturalness of the WSA. Because of the availability of similar woodlands on the west slope of the Bighorn Mountains, such activity is unlikely to occur in the Alkali Creek WSA; if it should occur, its extent would be limited.

Conclusion: In the long-term (50 years) potential tar sand exploration and development activities will result in a loss of wilderness values within a substantial portion of the WSA.

Effects on Recreation Use and Quality

Nondesignation of the WSA would lead to an eventual increase in improved access and enhancement of motor vehicle related recreation activities. Mineral related road construction will make the area increasingly more accessible year-round. Off-road vehicle (ORV) use restrictions will limit motorized use in the area to designated roads and trails.

The long-term quality of the primitive recreation experience in the Alkali Creek WSA would change under the No Wilderness Alternative. This change is expected to occur as a result of tar sand related development. Hunting would still occur but road construction and strip mining activities could

ENVIRONMENTAL CONSEQUENCES - ALKALI CREEK

result in lower wildlife numbers and the quality of the hunt would be adversely affected.

Conclusion: Motorized recreation opportunities are expected to be enhanced within the WSA under this alternative, but significant increases in visitor use are not expected.

Effects on Wildlife

Potential tar sand mining activities associated with this alternative, could result in significant long-term impacts to wildlife populations and habitat. Mule deer and elk using the Alkali Creek WSA will be increasingly impacted by improved access. Approximately 20 percent of the WSA elk and mule deer populations could be displaced from tar sand related development activities. As these impacts further diminish the quality of the WSAs wildlife habitat, a decline in big game animals is expected. Threatened and endangered species are not known to occur therefore impacts are not expected.

Conclusion: The extent of wildlife population and habitat losses depends on future tar sand development. Disruptive activities occurring on elk and mule deer crucial winter range would be a major wildlife concern.

Effects on Livestock Grazing and Management

Existing livestock grazing will continue to be authorized at current levels or adjusted to meet range management objectives. Motor vehicle access would be less restricted and this would enhance livestock management and project maintenance and development. Increased access would facilitate gathering, transporting and periodic inspections of livestock. In the long-term, a slight decrease in forage may result from mineral development activity.

Conclusion: Livestock would be managed as described in the Affected Environment.

Effects on Mineral Exploration and Production

Mineral leasing would occur and development would be allowed on existing and future mineral leases subject to lease stipulations (see Chapter 2). Development of tar sand deposits would occur at a rate of approximately 10 acres per year for a minimum of 10 years.

Conclusion: There would be no impacts on mineral exploration and development with this alternative.

Effects on Water Quality

Tar sand exploration and production activity could cause accelerated soil erosion and increased sediment delivery from the area. Surface disturbances would be partially mitigated through reclamation procedures. If produced water discharges occur, salinity may be increased in receiving perennial stream. Long-term produced water discharges would alter ephemeral channels by promoting the growth of emergent and submergent aquatic vegetation, thereby creating wetland habitat.

Conclusion: Sedimentation originating from surface disturbances and salinity resulting from produced water discharge would be the primary water quality concern.

Alkali Creek All Wilderness Alternative

Effects on Wilderness Values

Development of tar sand deposits is not a significant concern under this alternative. All six existing mineral leases were issued before passage of the combined Hydrocarbons Act on November 16, 1981. If a request for tar sand extraction occurs on these leases, strip mining activity would not be permitted. Also, wilderness protection stipulations apply to most mineral leases in this WSA.

If any of the 22 mining claims located for silica within the WSA prove to have valid existing rights, they could be developed and that development would impact wilderness values.

Opportunities for solitude would be foregone adjacent to 1 mile of cherry-stem road excluded from the designated area.

Designation would expand geographic distribution of the poorly represented Sagebrush Steppe Ecosystem within this region, but several other study areas of this ecosystem type also have the potential to be designated.

Conclusion: Wilderness designation would provide short- and long-term benefits to wilderness values. Most of the areas natural character and outstanding opportunities would be preserved.

Effects on Recreation Resources

Wilderness designation would enhance opportunities for primitive recreation uses such as walk-

ENVIRONMENTAL CONSEQUENCES - ALKALI CREEK

in hunting, hiking and camping. Motor vehicle recreation use would be excluded from the designated area but would still occur on boundary roads and the cherry-stem road leading to the private inholding. This would not result in any major impacts since adjacent areas provide abundant opportunities for motorized recreation use. Commercial outfitting and guiding for hunting would continue to be authorized under permit.

Conclusion: Recreation use levels are not expected to change significantly as a result of designation. Protection of primitive, unconfined recreation opportunities within most of the designated area would be ensured.

Effects on Wildlife

This alternative would protect elk and mule deer populations and crucial winter range habitat from tar sand exploration and development. Activities on any of the silica mining claims (if valid) could displace wildlife and result in short-term losses of forage available for elk and mule deer. Since management of the designated area would restrict most development activities an incentive may be created for encouraging development, especially for tar sands, within the private inholding. This private land is also considered crucial winter range habitat, therefore, wildlife populations would be effected.

Conclusion: Wilderness designation would provide long-term protection on crucial winter range habitat for elk and mule deer populations.

Effects on Timber Production

This alternative is not expected to significantly affect the juniper woodlands identified in the Alkali Creek WSA. Options for managing these stands for the production of wood fiber commodities would be prohibited under this alternative.

Effects of Livestock Grazing and Management

Under this alternative, grazing use would continue at the current 811 AUM level. Grazing management on the allotments in the wilderness area would be affected by restrictions on motor vehicle use and by the requirements for special materials and/or design of range projects. Vegetative manipulation practices such as the prescribed burning of sagebrush and juniper to increase livestock forage would be analyzed to determine effects on the natural plant community and wilderness objectives.

Special requirements and access restrictions would increase operating costs for permittees running livestock in the wilderness area. Unrestricted motor vehicle use would continue on the cherry-stem road excluded from the designated area. Restricting access from the Alkali Road to the private inholding on three separate two-track trails will be inconvenient for the private landowner's grazing operation.

Conclusion: Livestock grazing would continue basically the same as it occurs today. Motor vehicle access restrictions would have little effect on livestock management.

Effects on Mineral Exploration and Production

This alternative will remove 10,100 acres of land with the potential for the recovery of tar sand deposits from development. Further exploration and development will be precluded from five tar sand deposits within the WSA.

Due to low potential (excluding tar sands), the impacts to oil and gas exploration and development are considered to be negligible. The six existing post-FLPMA oil and gas leases would not be reissued upon expiration.

Potentially valuable (dependent upon future economic conditions) vein-type silver, sulfides, rare earth elements, and silica mineralization will not be developed. This may irreversibly or irretrievably impact development of these resources. Twenty-two mining claims encumber the lands involved. It is not known if there are any valid discoveries on these claims.

Conclusion: Valid existing rights associated with mining claims would be honored. Future discovery and development opportunities for solid and fluid minerals would be precluded on the remaining area. This alternative will adversely impact mineral exploration and production.

Effects on Water Quality

Designation of the Alkali Creek WSA would cause restrictions to be placed on surface disturbing activities, with potential benefit to watershed resources. By restricting surface disturbing activities, accelerated soil erosion would be prevented, and ultimately, sediment loads delivered from the designated area would be reduced.

Produced water discharges would not occur, and salinity would not be increased in receiving perennial waters. At the same time wetland habitat would not be created.

ENVIRONMENTAL CONSEQUENCES - ALKALI CREEK

Conclusion: Existing water quality would be maintained without the threat of additional sediment loading and increased salinity.

Alkali Creek Partial Wilderness Alternative

Effects on Wilderness Values

The Partial Wilderness Alternative reduces the Alkali Creek WSAs size, but it would more effectively protect wilderness values. The lands included would form a single manageable block with no private inholdings or cherry-stem roads.

Deletion of the private lands would eliminate the threat of potential nonwilderness related activities coming from within the WSA. Off-site influences from the adjacent private lands could still degrade opportunities for solitude within a portion of the designated area, but this would no longer be a significant concern.

Valid existing rights in the form of mineral leases and mining claims within the area could still be explored or developed under this alternative. This type of development, although unlikely to occur, has the potential to significantly degrade wilderness values within site specific locations.

Conclusion: Designation of the area under this alternative would ensure long-term protection of wilderness values, except where valid existing rights on mining claims occurred. Development of these claims is unlikely to occur.

Effects on Recreation Use and Quality

This alternative would allow limited vehicle access on 1,913 acres of public land that would be deleted from the Alkali Creek WSA. This additional vehicle access would compliment some vehicle based recreation pursuits. Recreation use on the remaining area would be restricted to nonmotorized, primitive activities such as walk-in hunting, hiking and horseback riding. This should not adversely affect recreationists due to the abundant opportunities for motorized recreation available in the Big Horn Basin.

Conclusion: Recreation use within the designated area would continue much as it has occurred in the past. Significant changes in use levels are not expected.

Effects on Wildlife

This alternative would provide long-term protection on crucial winter range habitat within the designated area, yet the overall quality of wildlife habitat could be diminished since security cover could be lost on lands to be dropped.

Conclusion: Restrictions on mineral development would enhance wildlife habitat by providing a secure area for elk and deer during the winter.

Effects on Livestock Grazing and Management

The impacts of this alternative on livestock grazing would be the same as in the All Wilderness Alternative except that the problem of motorized access on three short two-track trails leading to private lands in the Small Allotment (0188) would be eliminated. Grazing use would continue to be authorized at current levels within the designated area. Restrictions on motorized vehicle use would apply within the designated area.

Effects on Mineral Exploration and Development

The effects of this alternative on mineral exploration and development would be the same as those for the All Wilderness Alternative except impacts would be concentrated within a 8,187 acres area.

Effects on Water Quality

The impacts of the Partial Wilderness Alternative on water quality would be essentially the same as those identified under the All Wilderness Alternative, but they would affect a slightly smaller area.

Alkali Creek Wilderness Enhancement Alternative

Effects on Wilderness Values

The Wilderness Enhancement Alternative would maximize the Alkali Creek area's capability to provide primitive recreation opportunities. This alternative would protect wilderness values on 680 acres and on a cherry-stem road that would not receive protection under the All Wilderness Alternative. These additional lands exhibit the

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

same natural character as the lands included in the existing WSA. An abandoned cabin exists within this private inholding (see Chapter 3, Alkali Creek, Mandatory Wilderness Characteristics), but its influence on wilderness values are minimal. Management of the revised area would eliminate the possibility for outside influences occurring on these lands. Outside influences, especially development activities, have potential to affect opportunities for solitude.

Conclusion: The primary benefit to wilderness values derived from this alternative is that it provides a much more manageable boundary due to elimination of a substantial private inholding and motorized use occurring on a cherry-stem road.

Effects on Recreation Use and Quality

Recreation use in the Alkali Creek WSA would not differ significantly under this alternative, from that which would occur under the All Wilderness Alternative. Vehicle related recreation access would be denied on the lands to be acquired and on the cherry-stem road. The significance of this restriction would be minimal due to the abundant vehicle-oriented recreation opportunities available on other public lands in the vicinity.

Conclusion: In the long-term (50 years) opportunities for a primitive recreation experience would be preserved.

Effects on Wildlife

This alternative will improve wildlife security in the Alkali Creek WSA by reducing wildlife stress from mineral development activities and motorized vehicle use. Acquisition of the private inholding will also improve wildlife habitat values by guaranteeing management control of the area.

Conclusion: Designation under this alternative will provide long-term protection for the elk and mule deer on crucial winter range habitat.

Effects on Livestock Grazing and Management

The effects of this alternative on livestock grazing would be the same as under the All Wilderness Alternative. Since the private lands in the Small Allotment would be acquired, the need for access to this area for grazing management would be reduced.

Effects of Mineral Exploration and Production

The cumulative effect of designation under this alternative would be to remove 10,780 acres of land from availability for leasing, exploration and development. Existing post-FLPMA leases would not be reissued upon expiration. Due to wilderness protection requirements, development of these post-FLPMA leases would be considerably higher than costs for lease development outside the area. Development of the five potential tar sand deposits within the designated area would not occur. Existing rights associated with valid mining claims would be honored.

Conclusion: The area would be withdrawn from all forms of mineral exploration and development. Mineral development would only be allowed on mining claims with valid rights.

Effects on Water Quality

The effects of this alternative on water quality would be essentially the same as those identified under the All Wilderness Alternative, but would affect a slightly larger area.

Conclusion: Existing water quality would be maintained without the threat of sediment loading or increased salinity occurring as a result of surface disturbing uses.

TRAPPER CREEK

Trapper Creek All Wilderness Alternative (Proposed Action)

Effects on Wilderness Values

Designation of this area as wilderness would provide short- and long-term benefits to the wilderness resource. Pristine habitat associated with a previously proposed National Natural Landmark (see Affected Environment) would be preserved.

Since the Trapper Creek area has low, potential for the existence of oil and gas (other than tar sands) development is unlikely. If development was to occur five of the eight post-FLPMA mineral leases issued within the area contain the wilderness protection stipulation (Appendix A) which would protect wilderness values.

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

Designation would protect wilderness values in potential tar sand and commercial forest development areas.

The Trapper Creek segment of the proposed Spanish Point Karst ACEC and a portion of the proposed Spanish Point Caves withdrawal located within the designated area would be enhanced since ACEC and mineral withdrawal objectives are consistent with wilderness management goals.

Conclusion: A multitude of significant wilderness values including National Register eligible archeological sites, bald eagle and peregrine falcon habitat, a self-sustaining trout fishery, pristine forest/woodland and aquatic/wetland habitats, regionally significant cave resources and a water recharge area important for the maintenance of municipal and irrigation wells would be protected from development activities on 7,200 acres.

Effects on Recreation Use and Quality

Designation of the WSA would allow only primitive recreation activities. All types of wilderness compatible nonmotorized recreation opportunities including walk-in hunting, fishing and hiking would be enhanced. Off-road vehicles and other forms of motorized recreational use would be eliminated within the area. Only very limited effects (about 100 visitor days per year) are expected since very few vehicle trails are located within the WSA.

Commercial outfitter/guide operations will continue to be administered so use is harmonious with the wilderness resource and other wilderness visitors.

A slight increase in local visitation to the area is likely due to publicity associated with the designation process. Visitor use will continue to draw attention to the need for legal public access on the South Trapper Canyon road. Since most recreation use will be confined to a narrow corridor within the canyon bottom, it may be necessary to impose visitor use limitations in order to maintain a primitive recreation experience.

Designation will enhance management and help preserve wild caving opportunities associated with Great Expectation Cave System. This enhancement would stem from wilderness preservation measures implemented through the designation process.

Conclusion: Wilderness designation would ensure long-term protection for outstanding primitive recreation opportunities now available.

Effects on Wildlife

Designation would maintain wildlife habitat integrity within the Trapper Creek WSA. Human use concentrated within Trapper Canyon has potential to disrupt a portion of wildlife populations. However, anticipated levels of wilderness recreation use should not significantly affect wildlife, especially since visitor use would not occur when the area serves as crucial winter habitat for elk and mule deer. If significant affects occur, recreation use would be regulated through visitor use restriction incorporated in the wilderness management plan.

A proposal for peregrine falcon reintroduction by 1990 would be included in the wilderness management plan. The maintenance of essential falcon habitat would be assured.

Conclusion: Crucial winter habitat on 7,200 acres would be protected for use by up to 400-500 elk and 200-300 mule deer. Bald eagle hunting territory would remain undisturbed and peregrine falcon habitat viable for future reintroduction.

Effects on Fisheries

Designation of the Trapper Creek WSA under this alternative could cause an increase in fishing pressure and associated visitor use on Trapper Creek. Initially, fishing pressure will not exceed the stream's capacity and will only reach the level recommended by the WG&FD. In order to maintain an acceptable population of self-sustaining wild trout, the WG&FD may have to implement restrictive controls to prevent overfishing. The WG&FD routinely changes fishing restrictions in order to maintain desirable fish populations. In the long-term, designation will protect the Trapper Creek fishery.

Conclusion: Trout habitat preservation would be emphasized in order to sustain a high quality stream fishery. The opportunity to catch wild trout would be preserved.

Effects on Wetlands

Human use along Trapper Creek will result in establishment of a trail paralleling the stream and establishment of clearings and fire rings at campsites. Since the riparian vegetation along Trapper Creek is thick, the trail will develop mostly on the south facing slope, where game trails now exist. Where campsites develop, some riparian vegetation will be removed for firewood. The riparian zone will be protected from unauthorized livestock use.

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

Conclusion: Overall, the amount of human use expected within the area will not significantly effect wetland conditions.

Effects on Timber Production

Under this alternative, all forest land (1,324 acres of commercial forest land and 276 acres of woodlands) within the Trapper Creek WSA would be subject to natural ecological processes. Timber stands will eventually break down and be subject to increased danger from fire and disease. It is anticipated that the stands will be subject to a cycle of 200 to 300 years in which the stand's economic value as forest products will be lost to wildfire and disease. Other resource values within the WSA that are associated with forest cover would also be subject to this type of cycle.

Conclusion: The removal of 1,324 acres of commercial forest land and 276 acres of woodlands from the timber harvest base would have a small adverse impact on timber production and on the local timber industry.

Effects on Livestock Grazing and Management

Authorized livestock grazing would continue at current (498 AUM) levels. Since forage in the canyon is not allocated to livestock use, unauthorized livestock drift would be eliminated through fencing. Restrictions on motor vehicle access would have only a minor effect since there are only a few vehicle trails within the WSA. Only small portions of any one allotment are within the wilderness boundaries, therefore, impacts to livestock operators would not be very significant.

Conclusion: Livestock grazing would not be affected as a result of this alternative. Allotments will be managed through allotment management plan prescriptions.

Effects on Mineral Exploration and Development

Mineral resources on 7,200 acres would not be available for leasing, exploring or development. An ACEC proposal recommends no leasing on 1,200 acres. Eight existing post-FLPMA leases would not be reissued upon expiration. Due to wilderness protection requirements costs for exploration or development of the post-FLPMA leases in the designated area would be considerably higher than costs for lease activities outside the area. Development of the two potential tar sand deposits would not occur. Since no mining claims exist, exploration or development of locatable minerals would not be permitted.

Conclusion: Wilderness designation would preclude further exploration and development in the short- and long-term. Industry may lose the opportunity to explore for and develop potential tar sand reserves in the designated area.

Effects on Water Quality

This alternative would place restrictions on mechanical disturbances resulting from logging or mineral exploration. Development would be consistent with management goals for the karst groundwater recharge areas within the Trapper Creek WSA. Eliminating soil disturbance would prevent accelerated erosion, and ultimately additional sediment loads from entering Trapper Creek. Prevention of "unnatural" and excess sediment from entering Trapper Creek may prevent plugging of underground solutional conduits which serve to transport groundwater. The introduction of chemical pollutants in the form of pesticides and herbicides would also be prevented.

Activities by humans seeking primitive recreational experiences will create impacts that will increase sediment and bacteriological contamination of Trapper Creek. Human activity within the WSA will create trails. Compaction of the trails will serve to increase runoff and sediment delivery from the trails. The amount of sediment delivered from the trails relative to other sources will be relatively insignificant. Bacterial contamination may increase as a result of improper disposal of fecal wastes. Human fecal contamination of surface water is of concern due to possible introduction of pathogenic bacteria.

Conclusion: Limitations on surface disturbing activities will ensure maintenance of existing pristine water quality. Human activity is a concern but expected use levels and seasons of use will limit cumulative impacts.

Trapper Creek No Wilderness Alternative

Effects on Wilderness Values

Under this alternative the Trapper Creek WSA would be managed much as it has been in the past. Existing uses such as livestock grazing and nonwilderness recreation activities would continue. There are no plans for the development of range or wildlife management facilities that would significantly affect wilderness values.

The physical character of the Trapper Creek WSA is probably the best factor in keeping the

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

area free from activities that would alter wilderness values. Due to difficult canyon terrain and poor potential for rehabilitation, surface disturbing activities would most likely not be permitted.

The greatest potential for adverse impacts to wilderness values would arise if it becomes economically feasible to develop the potential tar sand deposits or existing oil and gas leases located in the Trapper Creek WSA. Tar sand deposits located in and adjacent to the area, if developed, may seriously damage karst features in the WSA.

Standard and special stipulations applied to mineral leases would in most instances prevent unnecessary and undue degradation, but due to the extremely fragile nature of the Trapper Creek watershed, the potential exists for significant adverse impacts to wilderness values. A well drilled into the Great Expectations Cave System could destroy ecological balance and cause irretrievable damage to cave resources.

Eventual timber harvesting on 1,324 acres of commercial forest land within the Trapper Creek WSA has the potential to cause long-term impacts to wilderness values. Logging would cause soil disturbance that could result in accelerated erosion and additional sediment entering into Trapper Creek. Sediment accumulations have the potential to damage cave ecosystems and existing pristine trout habitat in Trapper Creek. Logged areas would be most evident in the short-term but evidence of logging would result in a long-term impact. As with the Medicine Lodge WSA, some of the commercial forest land is currently not accessible due to steep slopes, but it is expected to become more available as technology for logging systems improves in this region.

The use of motorized vehicles on the rims of the canyon would cause vehicle ruts and minor damage to vegetation. The noise and sight of vehicles within the WSA uplands could affect visitors opportunities to experience solitude. Off-road vehicle designations will close 1,200 acres to vehicle use and limit vehicle travel to designated roads and trails and by seasons of use within the remaining WSA. When implemented, these designations will help reduce impacts to wilderness values.

The use of mechanized equipment for fire suppression has the potential to affect the natural values of the WSA. This loss would be most evident if dozers were used to construct fire lines. Long-term impacts would be evident in the vicinity of the fire location.

Conclusion: Most wilderness values within the canyon portion of the Trapper Creek WSA are

expected to be maintained under this alternative. The potential for loss of wilderness values from oil and gas development activity is low. Timber harvesting and tar sand development in accessible locations have potentials for impacts on naturalness, solitude and primitive recreation opportunities. Overall, short-term impacts would be negligible since little development activity is anticipated in the near future whether or not the area is designated wilderness.

Effects on Recreation Use and Quality

Nondesignation of the WSA is expected to lead to an eventual long-term decline in a portion of the primitive recreation resources base. This decline would be most noticeable on upland areas and is expected to originate from road construction and other activities associated with tar sand exploration and timber harvesting. This alternative would enhance vehicle oriented recreation activities, and could expand the existing road system. These development activities have the potential to lower wildlife numbers, degrade the Trapper Creek sport fishery, and adversely affect cave ecosystems found in the area.

Conclusion: Primitive recreation opportunities will still be available within a significant portion of the WSA. Visitor use levels are not expected to change much in the near future.

Effects on Wildlife

The Trapper Creek, No Wilderness Alternative is expected to result in potentially significant impacts to wildlife resources. These impacts would stem primarily from potential tar sand exploration, mine development, and timber harvesting. Increases in these types of disruptive human uses could diminish peregrine falcon and bald eagle habitat. Long-term effects of these activities could also result in diminished wildlife habitat and a displacement of approximately 20 percent of the elk and mule deer populations from within the WSA.

Conclusion: Crucial winter range habitat for elk and mule deer may be disturbed by tar sand development occurring at a rate of about 10 acres per year and potential timber harvesting on 1,324 acres of commercial forest land.

Effects on Fisheries

Development activities could affect existing water quality and fishery conditions. Fish popu-

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

lations within 10 miles of Class 3 trout fishery could be reduced, and trout habitat degraded.

Effects on Wetlands

Existing low human use levels within Trapper Canyon will not affect wetland conditions. Unauthorized livestock use continues to threaten the riparian zone.

Effects on Timber Production

The 1,324 acres of commercial forest land and 276 acres of woodlands in the Trapper Creek WSA would remain in the timber harvest base under this alternative. The timber stands identified suitable for forest management within the WSA would be brought into a more productive, regulated condition through the application of timber harvests, thinning, planting and other intensive forest management practices. Options for the management of woodlands would remain open.

Conclusion: Timber harvesting will continue at an annual rate of 1 MMBF on public lands in the Washakie Resource Area. Commercial forest lands in the Trapper Creek WSA represents 8 percent of the total forest base. On a sustained yield basis approximately 80 MBF of timber could be harvested annually from the Trapper Creek WSA under this alternative.

Effects on Livestock Grazing and Management

Under this alternative, existing livestock grazing use and management practices will continue at current levels or be adjusted to meet range management objectives. Less restrictions on motor vehicle access would allow for ease of range project maintenance, development and livestock management. Increased access would facilitate gathering, transporting and periodic inspections of livestock. Short- and long-term forage potential could be both increased through timber harvesting and decreased through mineral development.

Conclusion: Livestock use and management will remain basically the same as it occurs today.

Effects on Mineral Exploration and Development

Mineral leasing would occur on 6,000 acres and development would be allowed on existing and future mineral leases. The proposed Spanish Point Karst ACEC would not permit leasing on 1,200 acres. Development would be subject to lease stipulations identified in Chapter 2. The no surface occupancy stipulation attached to mineral leases on 80 percent of the area will make development of leases more costly and may preclude some activities. Tar sand development may occur within the area.

The proposed Spanish Point Caves Withdrawal will not allow development of locatable or leasable minerals on 710 acres within the WSA.

Conclusion: A combination of a multitude of high value fragile resources and requirements designed to protect these values will result in development of mineral resources only after it has been demonstrated that environmental protective measures are ensured. These requirements may place mineral development costs beyond economically feasible limits.

Effects on Water Quality

This alternative would hinder management of the karst groundwater recharge areas within the Trapper Creek WSA. Surface disturbing and chemical land treatments, including logging activities, tar sand exploration and development and application of silvicultural chemicals and pesticides, could occur within or immediately outside the WSA boundaries. Surface disturbing activities could cause soil disturbance, accelerated erosion, and, ultimately, additional sediment loading of Trapper Creek. Excess sediment entering sinkholes could be detrimental to the recharge zone, as sediment could plug underground solutional conduits that serve to transport groundwater. Sediment also serves to transport other pollutants such as nutrients and pesticides.

ENVIRONMENTAL CONSEQUENCES - TRAPPER CREEK

Significant water quality deterioration could occur if produced water from oil and gas activities were discharged into Trapper Creek. Current State of Wyoming, Department of Environmental Quality (DEQ) standards allows water discharges that could degrade water quality in the receiving stream. Effects of disposing of produced water from oil and gas production activities would be addressed during a project specific environmental assessment however waste water discharges and oil spills could occur accidentally. Produced water could increase salinity, and add oil and grease to an aquatic environment that is virtually free of

this pollutant. Although sediment producing activities could be partially mitigated in the short-term and totally in the long-term through reclamation, chemical pollutants that enter the groundwater system through Trapper Creek would be permanently trapped until withdrawn by downslope wells.

Conclusion: There would be a higher likelihood of water quality deterioration in the form of increased sedimentation, salinity and possibly introduction of chemical pollutants in both surface and ground water.

CHAPTER 5

CONSULTATION AND COORDINATION

COORDINATION AND PUBLIC INVOLVEMENT

Introduction

This Draft Wilderness Environmental Impact Statement for the Washakie Resource Area has been prepared by specialists from the BLM's Washakie Resource Area, with assistance from Worland District personnel. Public participation has been an ongoing process throughout the inventory and planning phases of the wilderness review required by FLPMA. The review process included inventories of resources, public participation, and coordination with individuals, organizations, and other agencies. Care has been exercised to inform the public throughout the wilderness review process.

Public Involvement

The inventory phase provided two official public comment periods during which the public was asked to provide information on the suitability of areas for identification as wilderness study areas. The first of these comment periods, during the spring of 1979, dealt with proposed initial inventory decisions and was widely publicized in state and local news media. In the Worland District, briefings were given for the planning commissions and county commissioners of the four counties in the district, open houses were held in Worland, Greybull and Cody, and a formal public meeting was held in Worland. District staff also made presentations to a number of local civic organizations. In April of 1980, proposed intensive inventory decisions were published and a second public comment period was initiated. Again there were open houses, public meetings, briefings for local government commissions, presentations to interested groups, and extensive news media coverage. Comments were accepted through August 19, 1980, and were used in making final WSA determinations.

In January of 1983 land use planning questionnaires were sent to about 650 people. These questionnaires were designed for the respondent to identify issues of concern, including wilderness, if desired.

A *Federal Register* notice and news release in February 1983 announced the initiation of the Washakie RMP and EIS, inviting comments and soliciting suggestions and input on issues identified to be analyzed in the land use planning effort including wilderness.

Wilderness has been a topic in formal and informal meetings involving many members of the ranching community and minerals industries and with other interest groups and agencies. A summary of these comments generated from those meetings is on file in the Washakie Resource Area Office.

The "Issue Scoping" section in Chapter 1, identifies topics of major concern and were used in the organization of Chapter 4, in which environmental consequences of the alternatives are analyzed. Another issue not analyzed but identified within the scoping process was economic impacts resulting from wilderness designation. Overall effects were considered insignificant so this issue was not considered further.

Consistency

Federal, state and local agencies and organizations were considered during the preparation of this EIS. Wilderness suitability recommendations resulting from this EIS were analyzed in relationship to consistency with the plans of these agencies and organizations. No inconsistencies with any existing state or other government plans were identified. Frequent contacts have been made with state, county and Forest Service officials.

Distribution

Required Reviewers

U.S. Department of the Interior
Bureau of Land Management (340), Washington, D.C.
Bureau of Land Management (931), Cheyenne, WY.
Office of Environmental Project Review, Denver, CO.
National Park Service, Div. of Env. Compliance (WASO 762), Washington, D.C.
U.S. Fish and Wildlife Service, Chief, Div. Env. Coord., Washington, D.C.
Minerals Management Service, Offshore Env. Assessment Div., Washington, D.C.

CONSULTATION AND COORDINATION

Bureau of Reclamation, Div. of Env. Affairs, Washington, D.C.

Bureau of Mines, Mineral Data Anal. (MS-5000), Washington, D.C.

U.S. Geological Survey, National Center (423), Reston, VA.

U.S. Air Force

HQ USAF/LEER, Washington, D.C.

HQ-US LEVX, Office of Env. Planning, Bolling AFB, Washington, D.C.

Asst. Secy. of the Air Force, Install. Env. and Safety, Pentagon, Admiralty, VA.

U.S. Army Corps of Engineers

Chief, Planning Division, Omaha, NE.

Chief, Planning Division, Portland, OR.

Department of Energy (EP-36), Washington, D.C.

Nuclear Regulatory Commission, Bethesda, MD.

Environmental Protection Agency, Denver, CO.

State of Wyoming, Wyoming State Clearing House, Cheyenne, WY.

Other Contacts

Federal Government

U. S. Department of Agriculture

Farmers Home Administration

Soil Conservation Service

U.S. Forest Service

U. S. Department of the Interior

Bureau of Indian Affairs

Bureau of Mines

Bureau of Reclamation

Fish and Wildlife Service

Geological Survey

Mineral Management Service

National Park Service

Office of Surface Mining

U. S. Department of Defense

Department of Army, Corps of Engineers

Air Force

U. S. Department of Energy

U. S. Department of Transportation

Environmental Protection Agency

State of Wyoming

Office of the Governor

Wyoming National Guard

Shoshone, Arapaho and Crow Indian Tribes

State Board of Land Commissioners

University of Wyoming

Wyoming Conservation Commission

Wyoming Department of Agriculture

Wyoming Department of Environmental Quality

Wyoming Game and Fish Department

Wyoming Geological Survey

Wyoming Highway Department

Wyoming Recreation Commission

Wyoming State Clearing House

Wyoming State Engineer

Wyoming Water Development Commission

County Government

Big Horn County Commissioners

Hot Springs County Commissioners

Washakie County Commissioners

United States Legislators

The Honorable Richard Cheney

The Honorable Alan K. Simpson

The Honorable Malcolm Wallop

State Legislators

Office of Representatives (2), Big Horn County

Office of Representative, Hot Springs County

Office of Representative, Washakie County

Office of Senator, Big Horn County

Office of Senator, Hot Springs & Washakie Counties

Businesses

Amerada-Hess

American Natural Gas Production Company

Aminoil USA, Incorporated

Amoco Production Company

Anderson Oil Company

Anschutz Corporation

Apache Corporation

Archeological Consultants, Incorporated

Arkla Exploration

Atlantic Richfield Company

Beard Oil Company

Benton Clay Company

Beta Exploration

Big Horn Land Title Company

Big Horn Lumber Company, Incorporated

Big Horn REA

Bishop Geological Services

Blackburn Drilling

Boydston & Frazen Well Service

Bronco Oil & Gas Company

Buckhorn Petroleum Company

Canyon Concrete & Excavating, Incorporated

Carneal Construction

Carver Excavation

Carter Oil Company

Champlin Petroleum Company

Cherokee Exploration

Chevron USA, Incorporated

Coastal Oil & Gas Corporation

Cody Lumber Company

Conoco, Incorporated

Cork Petroleum Company

Coronado Oil Company

Coseka Resources Ltd.

Cowboy Timber Treating, Incorporated

Dale Weaver, Incorporated

Dan Brown Trucking

Dave Matis Masonry

Dresser Industries-Minerals Division

Environmental Management Services Company

Exxon Company USA

Freeport Exploration Company

CONSULTATION AND COORDINATION

Frontier Petroleum Services
Getty Oil Company
Goton Outfitters
Grace Petroleum Company
Grass Creek Lumber Company
Grosch Construction Company
Gulf Oil Corporation
H & R Exploration
Hot Springs County REA
Hot Springs Title Company
Hrubetz Oil Company
HSB, Incorporated
Hughes Oil, Incorporated
Husky Oil Company
Intermountain Motor Sports
John W. Donnell Associates, Incorporated
Kaycee Bentonite Corporation
Koch Production Company
Marathon Oil Company
Marathon Pipeline Company
McCormac Redi-Mix
McGarvin-Moberly Construction Company
Meridian Land & Mineral Company
Milestone Petroleum
Minerals Exploration Coalition
Mobil Oil Corporation
Montana-Dakota Utilities Company
Mountain Geophysical
Natural Gas Processing Company
Norpac Exploration Services, Incorporated
Northwestern Resources Company
Nupec Resources, Incorporated
Occidental Exploration & Production
Ozark Underground Laboratory
Pacific Power & Light Company
Peter Kiewit & Sons Mining
Petro-Lewis Corporation
Phillips Oil Company
Placid Oil
Prairie Winds Consulting Service
Ralph Wortham Construction
Santa Fe Energy Company
Shell Oil Company
Shellco Mines, Incorporated
Snyder Oil Company
Superior Oil Company
Tenneco
Texaco, Incorporated
Texas Gas Exploration Corporation
The Outdoorsman
Tri-County Telephone Association, Incorporated
Tri-State Generation & Transmission Association, Incorporated
True Oil Company
Union Oil Company of California
Union Texas Petroleum
United Minerals Ltd.
Valley Construction Company
Washakie Abstract Company
Washakie Oil Company
Wyo-Ben, Incorporated
Wyoming Production Credit Association
Wyoming Sawmills, Incorporated

Ranching/Grazing Interests

Arapahoe Padlock Ranch
Ewen Ranch, Incorporated
Flitner Land Company
Greer Brothers

Hamilton Ranch, Incorporated
Herbst Ranch
John Mercer, Incorporated
Mayland Brothers
Orchard Ranch Ltd.
Otter Creek Grazing Association
Paintrock Angus Ranch
Paintrock Hereford Ranch
Shell Valley Ranch
Southfork Ranch, Incorporated
Tensleep Cattle Company
Valley Ranch
Ve Bar Livestock Company
Wyoming Wool Growers Association

Organizations

American Wilderness Alliance
Basin Sportsmens Club
Earth First!
Foundation for North American Wild Sheep
Girl Scout National Center West
Hot Springs County Sportsmens Club
Intermountain Motor Sports
Isaac Walton League of America
National Audubon Society
National Outdoor Leadership School
National Wetlands Tech Council
National Wildlife Federation
Natural Resource Defense Council
Nature Conservancy
Park County Resources Council
Petroleum Association of Wyoming
Professional Outfitters and Guides of Wyoming
Public Lands Council
Rocky Mountain Oil and Gas Association
Sierra Club
Thermopolis Pick and Trowel Club
Wilderness Society
Willwood Irrigation District
Wyoming Heritage Society
Wyoming Mining Association
Wyoming Outdoor Council
Wyoming Outfitters Association
Wyoming State Mineral & Gem Society
Wyoming Wildlife Federation

PREPARERS

RMP/EIS Core Team

Mark E. Goldbach, Resource Area Outdoor Recreation Planner/Wilderness Team Leader, Document Preparation, Recreation and Wilderness Resources. Four years, BLM; two years, USFS; B.S. Recreation Resources Management, Slippery Rock State University.

David L. Stout, Planning Coordinator/RMP Team Leader, Plan Management, Outdoor Recreation, Wilderness Resources. Nine years, BLM; two years, Industry; M.S. Park Administration, Texas Tech. University; B.S. Outdoor Recreation, Colorado State University.

CONSULTATION AND COORDINATION

John H. Thompson, Environmental Coordinator/Technical Coordinator, Document Preparation. Eight years, BLM; M.S. Agricultural Economics, Purdue University; B.S. Economics/Political Science, South Dakota State University.

Interdisciplinary Team

David Baker, Recreation Technician/Outdoor Recreation. One year BLM; two years USFS; B.S. Recreation Management, University of Montana.

Steven S. Barrell, Geologist/Minerals. Eight years, BLM; one year South Carolina State Department Health and Environmental Control; M.S. Geology, University of South Carolina; B.A. Environmental Science, State University of New York College at Purchase.

Allan D. Carriere, Fire Management Specialist/Fire Control. Eleven years, BLM; one year, USFS; B.S. Forestry, University of Montana.

Stephen J. Christy, Forester/Forest Resources. Ten years, BLM; one year, Agricultural Research Service (USDA); two years, Colorado Dept. of Natural Resources, Division of Parks and Outdoor Recreation; M.A. Botany, University of Northern Colorado; B.S. Botany, Colorado State University; A.S. Mesa College, Grand Junction, Colorado.

Frederick Crockett, Geologist/Oil & Gas. One and one-half years BLM, 6 years Independent Oil and Gas companies, Casper, Wyoming. M.S. Geology, University of Utah; B.A. Geology, University of Maine; studies toward Ph.D. Geology, University of Wyoming, about 40 semester hours completed.

Arnold E. Dougan, Chief, Branch of Planning and Environmental Assistance/Coordination and Consultation. Three years BLM; one year MMS; one year USGS; eighteen years private industry; B.S. Environmental Science, Grand Valley State College; Graduate Study, Natural Resource Management, University of Michigan.

Mark J. Goeden, Range Conservationist/Range Management, Wild Horses. Eight years, BLM; one-half year, USFS; B.S. Biology, North Dakota State University; Graduate Study, Range Ecology, North Dakota State University.

Richard L. Kroger, Fisheries Biologist/Aquatic/Wetland Habitat. Seven years, BLM; five years, U. S. Fish and Wildlife Service; seven years, National Marine Fisheries Service; M.S. Zoology (Fisheries), University of Wyoming; B.S. Wildlife Techniques and Conservation, South Dakota State University.

Paul J. Meyer, Soil Scientist/Soils and Hazardous Materials. Six years, BLM; one year, USFS; M.S. Botany/Ecology, University of Minnesota; B.S. Biology/Chemistry, University of Minnesota.

Donald H. Ogaard, Chief, Branch of Inspection & Enforcement/Minerals. Three years, BLM, one year MMS; six years USGS; B.S. Chemistry, Metropolitan State College.

William C. Prentiss, Archeologist/Cultural Resources. One year, BLM; one-half year, U.S. Army Corps of Engineers; B.A. Anthropology, University of South Florida.

Gary W. Rosenlieb, Hydrologist/Water and Air Resources. Seven years, BLM; M.S. Water Resources Management, University of Wyoming; B.S. Microbiology, University of Wyoming.

Victor L. Trickey, Realty Specialist/Lands and Realty Management. Fourteen years, BLM; B.S. General Agriculture, Tarleton State College.

Bernard M. Weynand, Wildlife Biologist/Wildlife. Eight years, BLM; two years, Texas A&M University; one year, Arizona Game & Fish Dept.; B.S. Wildlife Science, Texas A&M University; Certified Wildlife Biologist by The Wildlife Society.

Support Services (Worland District)

Cynthia Schelin, Supervisor, Office Services

Becky A. Brown, Word Processing

Lorri Denton, Word Processing

Diane Losey, Word Processing

Grace Tanaka, Word Processing

Margaret Tidemann, Word Processing

APPENDIX A

WILDERNESS PROTECTION STIPULATION

By accepting this lease, the lessee acknowledges that the lands contained in this lease are being inventoried or evaluated for their wilderness potential by the Bureau of Land Management (BLM) under Section 603 of the Federal Land Policy and Management Act of 1976, 90 Stat. 2743 (43 USC Sec. 1782), and that exploration or production activities which are not in conformity with section 603 may never be permitted. Expenditures in leases on which exploration drilling or production are not allowed will create no additional rights in the lease, and such leases will expire in accordance with law. Activities will be permitted under the lease so long as BLM determines they will not impair wilderness suitability. This will be the case either until the BLM wilderness inventory process has resulted in a final wilderness inventory decision that an area lacks wilderness characteristics, or in the case of a wilderness study area until Congress has decided not to designate the lands included within this lease as wilderness. Activities will be considered nonimpairing if the BLM determines that they meet each of the following three criteria:

1. The activity is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.
2. Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet

scheduled for wilderness study, the reclamation will be scheduled from completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or unsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedule will be based on conservative assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F of the Interim Management Policy and Guidelines for Lands under Wilderness Review.)

3. When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or unsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in Section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for

APPENDICES

primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic or historical value. If all or any part of the area included within the leasehold estate is formally designated by Congress as wilderness, exploration and development operations taking place or to take place on that part of

the lease will remain subject to the requirements of this stipulation, except as modified by the Act of Congress designating the land as wilderness. If Congress does not specify in such act how existing leases like this one will be managed, then the provisions of the Wilderness Act of 1964 will apply, as implemented by rules and regulations promulgated by the Department of the Interior.

APPENDIX B

DEFINITION OF WILDERNESS CHARACTERISTICS

Section 603(a) of the Federal Land Policy and Management Act directs the BLM to use the criteria given by the Wilderness Act of 1964, in identifying areas having wilderness values. Section 2(c) of the Wilderness Act states the relevant criteria as follows:

“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions

and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.”

These characteristics are explained in detail in the “Wilderness Inventory Handbook - Policy, Direction, and Procedures and Guidance for Conducting Wilderness Inventory on the Public Lands; September 1978.”

APPENDIX C

WILDERNESS STUDY CRITERIA AND STANDARDS

The BLM Wilderness Study Policy specifies factors that are to be considered in developing suitability recommendations in the study phase of the wilderness review process. This guidance is summarized below:

The primary goal of the BLM wilderness study process is to determine an area's suitability or unsuitability for preservation as wilderness. The BLM will recommend for wilderness designation only those areas for which it has been determined, through the Bureau's multiple resource planning process and public involvement, that wilderness is the most appropriate use of the land and its resources. In addition, areas recommended as suitable for wilderness designation should possess wilderness values and multiple resource benefits capable of balancing the benefits of other resource values and uses which would be foregone due to wilderness designation.

In order to systematically evaluate these broad questions all BLM wilderness recommendations, both suitable and unsuitable for preservation as wilderness, will be justified on the basis of the two planning criteria and six quality standards listed below.

Criterion Number 1: Evaluation of Wilderness Values. Consider the extent to which each of the following contributes to the overall value of an area of wilderness purposes.

1. Mandatory wilderness characteristics: size, naturalness and outstanding opportunities for solitude or primitive, unconfined recreation.
2. Special features: the presence or absence and quality of ecological, geological or other features of scientific, educational, scenic, or historical value.
3. Multiple-resource benefits: the benefits to other multiple-resource values and uses that only wilderness designation of the area could ensure.
4. The extent to which wilderness designation of the area under study would contribute to expanding the diversity of the NWPS from the standpoint of the factors listed below:

- a. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

- b. Assessing the opportunities for solitude or primitive recreation within a day's driving time of major population centers.

- c. Balancing the geographic distribution of wilderness areas.

Criterion Number 2: Manageability. The area must be capable of being effectively managed to preserve its wilderness character.

Standard Number 1: Energy and Mineral Resource Values. Recommendations as to an area's suitability or unsuitability for wilderness designation will reflect a thorough consideration of any identified or potential energy and mineral resource values.

Standard Number 2: Impacts on Other Resources. Consider the extent to which other resource values or uses of the area would be foregone or adversely affected as a result of wilderness designation.

Standard Number 3: Impact of Nondesignation on Wilderness Values. Consider the alternative use of land under study if the area is not designated as wilderness, and the extent to which the wilderness values of the area would be forgone or adversely affected as a result of this use.

Standard Number 4: Public Comment. In determining whether an area is suitable or unsuitable for wilderness designation, the BLM wilderness study process will consider comments received from the interested and affected public groups at all levels - local, state, regional, and national Wilderness recommendations will not be based exclusively on a vote-counting majority rule system. The BLM will develop its recommendations by considering public comment in conjunction with its analysis of a wilderness study area's multiple resource and social and economic values and uses.

APPENDICES

Standard Number 5: Local Social and Economic Effects. In determining whether an area is suitable or unsuitable for wilderness designation, BLM will give special attention to adverse or favorable social and economic effects, as identified through the wilderness study process, that wilderness designation will have on local areas.

Standard Number 6: Consistency with Other Plans. In determining whether an area is suitable or unsuitable for wilderness designation, BLM will consider the extent to which the recommendation is consistent with officially approved and adopted resource-related plans of other federal agencies, state and local governments, and Indian tribes (and the policies and programs contained in such plans), as required by FLPMA and BLM Planning regulations.

APPENDIX D

DESCRIPTION OF ROS CLASSES

Each of the six ROS (Recreation Opportunity Spectrum) classes is described in terms of: (1) experience opportunities; (2) setting opportunities, and (3) activity opportunities. These descriptors provide a general overview of the opportunities included in each class. These overview statements do not describe each class in detail, but rather provide a point of departure from which the planner or manager can develop more precise prescriptions for each class based on specific situations encountered in field operations. The listing of activity opportunities is provided for illustrative purposes. It is not an all-inclusive list of activity opportunities on the public lands.

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS

Opportunity Class	Experience Opportunity	Setting Opportunity	Activity Opportunity
Primitive	Opportunity for isolation from the sights and sounds of man, to feel a part of the natural environment, to have a high degree of challenge and risk, and to use outdoor skills.	Area is characterized by essentially unmodified natural environment of fairly large size. Concentration of users is very low and evidence of other users is minimal. The area is managed to be essentially free from the evidence of man-induced restrictions and controls. Only facilities essential for resource protection are used. No facilities for comfort or convenience of the user are provided. Spacing of groups is informal and dispersed to minimize contacts between groups. Motorized use within the area is not prohibited.	Camping, hiking, climbing, enjoying scenery or natural features, nature study, photography, spelunking, hunting (big game, small game, upland birds, waterfowl), ski touring and snowshoeing, swimming, diving (skin and scuba), fishing, canoeing, sailing and river running (non-motorized craft).
Semi-Primitive Non-motorized	Some opportunity for isolation from the sights and sounds of man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills.	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values	Camping, hiking, climbing, enjoying scenery or natural features, nature study, photography, spelunking, hunting (big game, upland birds, waterfowl), ski touring and snowshoeing, swimming, diving (skin and scuba), fishing, canoeing, sailing, and river running (non-motorized craft).

APPENDICES

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS (Continued)

Opportunity Class	Experience Opportunity	Setting Opportunity	Activity Opportunity
Semi-Primitive Non-motorized (Cont.)		and the safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is not permitted.	
Semi-Primitive Motorized	Some opportunity for isolation from the sights and sounds of man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Explicit opportunity to use motorized equipment while in the area.	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and the safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted.	Same as the above, plus the following: ORV Use (4-WD, Dune Buggy, Dirt Bike, Snowmobile), Power Boating.
Roaded Natural	About equal opportunities for affiliation with other use groups and for isolation from sights and sounds of man. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. Practice of outdoor skills may be important. Opportunities for both motorized and non-motorized recreation are present.	Area is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Concentration of users is low to moderate with facilities sometimes provided for group activity. On-site controls and restrictions offer a sense of security. Rustic facilities are provided for user convenience as well as for safety and resource protection. Conventional motorized use is provided for in construction standards and design of facilities.	All activities listed previously plus the following: picnicking, rock collecting, wood gathering, auto touring, downhill skiing, snow-play, ice skating, water skiing and other water sports, hang gliding, interpretive use, rustic resorts and organized camps.

APPENDICES

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS (Continued)

Opportunity Class	Experience Opportunity	Setting Opportunity	Activity Opportunity
Rural	<p>Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. These factors are generally more important than the natural setting. Opportunities for wildland challenges, risk taking, and testing of outdoor skills are unimportant, except in those activities involving challenge and risk.</p>	<p>Area is characterized by substantially modified natural environment. Resource modification and utilization practices are obvious. Sights and sounds of man are readily evident, and the concentration of users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for specific activities. Developed sites, roads and trails, are designed for moderate to high use. Moderate densities are provided far away from developed sites. Facilities for intensive motorized use are available.</p>	<p>All activities listed previously, plus the following competitive games, spectator sports, bicycling, jogging, outdoor concerts and modern resorts.</p>
Modern Urban	<p>Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. Experiencing the natural environment, and the use of outdoor skills are largely unimportant.</p>	<p>Area is characterized by a highly modified environment, although the background may have natural elements. Vegetation is often exotic and manicured. Soil may be protected by surfacing. Sights and sounds of man, on-site, are predominate. Large numbers of users can be expected. Modern facilities are provided for the use and can be expected. Modern facilities are provided for the use and convenience of large numbers of people. Controls and restrictions are obvious and numerous. Facilities for high intensity motor use and parking are present with forms of mass transit often available.</p>	<p>All activities listed previously.</p>

APPENDIX E

WYOMING BLM STANDARD STIPULATIONS FOR SURFACE DISTURBING ACTIVITIES (ALSO OIL AND GAS LEASE STIPULATIONS)

SURFACE DISTURBANCE STIPULATION

Surface disturbance will be prohibited in any of the following areas or conditions. Modifications to this limitation may be approved in writing by the Authorized Representative.

1. Slopes in excess of 25 percent.
2. Within important scenic areas (Class I and II Visual Resource Management areas).
3. Within 500 feet of surface water and/or riparian areas.
4. Within a quarter mile or visual horizon (whichever is closer from a historic trail).
5. Construction during periods when the soil material is saturated, frozen, or when watershed damage is likely to occur.

Guidance

The SURFACE DISTURBANCE STIPULATION will be included on all lease parcels. The intent of this stipulation is to inform interested parties (potential lessees) that, when one or more of the five (a through e) environmental conditions exists, surface disturbing activities will be prohibited unless or until the lessee or his designated operator and the Surface Management Agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development of the lease and become a condition for approval in the Application for Permit to Drill (APD).

Specific threshold criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods of concern must be delineated at the field level (i.e., "surface water and/or riparian areas" may include both intermittent and ephemeral water sources or may be

limited to perennial surface water). These decisions, where possible, should be documented in the land use planning documents.

WILDLIFE STIPULATION

1. To protect important big game ungulate winter habitat, drilling and other surface disturbing activity will not be allowed during the period from November 15 to April 30 within certain areas encompassed by this lease. The same criteria applies to elk calving areas from the period of May 1 to June 30. This limitation does not apply to maintenance and operation of producing wells. Modifications to this limitation in any year may be approved in writing by the Authorized Officer.
2. To protect important raptor and/or sage and sharp-tailed grouse nesting habitat, drilling and other surface disturbing activity will not be allowed during the period from February 1 to July 31 within certain areas encompassed by this lease. This limitation does not apply to maintenance and operation of producing wells. Modifications to this limitation in any year may be approved in writing by the Authorized Officer.
3. No surface occupancy will be allowed on that portion of the lease within the area (*legal description*) for the purpose of protecting (e.g., *sage/sharp-tailed grouse strutting, and/or other species activity*) habitat. Modifications to this limitation in any year may be approved in writing by the Authorized Officer.

Guidance

The WILDLIFE STIPULATION is intended to provide two basic types of protection, season restriction (a and b) and no surface occupancy

APPENDICES

(c). Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated can and should be refined as necessary based upon current biological data at the time the APD is processed. It should eventually become a condition for approval in the Application for Permit to Drill.

The seasonal restriction section of the stipulation identifies three groups of species and delineates two similar time restrictions. These two restrictions are big game ungulate and raptors/grouse. The big game ungulates including elk, moose, deer, antelope, and bighorn sheep all require protection of crucial winter range between November 15 and April 30. Raptors including eagles, accipiters, falcons, buteos, osprey, ferruginous hawks, burrowing owls, and sage and sharp-tailed grouse all require nesting protection during periods between February 1 and July 31.

The no surface occupancy section of the stipulation is intended for protection of unique wildlife and wildlife habitat values (e.g., sage grouse strutting grounds, known threatened and endangered species habitat, etc.) which cannot be protected using seasonal restrictions.

SPECIAL RESOURCE PROTECTION STIPULATION

In order to protect (*resource value*), the District Manager reserves the right to prohibit surface disturbance (i.e., *within a specific distance of the resource value or between date-to-date*) in (*legal subdivision*). This limitation does not apply to operation and maintenance of producing wells. Modifications to this limitation may be approved in writing by the Authorized Officer.

Resource Category (*select category and identify specific resource values*)

1. Recreation areas
2. Special historic features
3. Special management areas
4. Sections of major rivers
5. Prior existing rights-of-way
6. Occupied dwellings.

Guidance

The SPECIAL RESOURCE PROTECTION STIPULATION is intended for use only in the few very specialized, site-specific situations where one of

the other three general stipulations will not adequately address the concern. The resource value, location, and specific restriction must be clearly identified. A detailed plan addressing mitigation and special restrictions on development will be required prior to development of a lease and become a condition for approval in the Application for Permit to Drill.

NO SURFACE OCCUPANCY STIPULATION

No surface occupancy will be allowed on the following described land (*legal subdivision/area*) because of (*resource values*). See examples.

Resource Category (*select category and identify specific resource value*)

1. Recreation areas (campgrounds, historic trails, national monuments, etc.).
2. Major reservoirs/dams, etc.
3. Special management areas (ACEC, wild and scenic rivers, etc.)

Guidance

The NO SURFACE OCCUPANCY STIPULATION (NSO) is intended for use only when other stipulations are determined insufficient to adequately protect the public interest and/or as an alternative to "no leasing." The legal subdivision and resource value of concern must be identified in the stipulation and be tied to a land use planning document. There will be no exceptions to this stipulation granted without modification of the appropriate land use plan or unless an exception is approved by the State Director.

Washington Office guidance advises that when considering the no lease option, a rigorous test must be met and fully documented in the record. This test must be based on the stringent standards of the Interior Board of Land Appeals. Since rejection of a lease offer is more severe than the most restrictive stipulation, the record must show that consideration was given to leasing subject to reasonable stipulations, including a NSO stipulation. The record must also show that stipulations were determined to be insufficient to adequately protect the public interest. A no-lease decision should not be made solely because it appears that directional drilling would be

APPENDICES

infeasible, especially where a NSO lease may be acceptable to a potential lessee. In such cases the opportunity to accept or refuse a NSO lease should be left to the potential lessee. Exception(s) by the District Manager to the NSO stipulation will be subject to the same test used to initially justify the imposition of this stipulation. If the NSO

stipulations are justified but upon development less restrictive stipulation would adequately protect the public interest, then an exception to the NSO stipulation could be granted. The record must show that because conditions and uses have changed, less restrictive stipulations will protect the public interest.

APPENDIX F

WORLAND DISTRICT OIL AND GAS POTENTIAL DEFINITIONS

Low: Evidence indicates one or more of the following probably are not present: hydrocarbon source rock, reservoir quality rock, or trapping mechanism. Hydrocarbon occurrences are not present near or in the WSA.

Moderate: Evidence indicates all of the following may be present: hydrocarbon source rock, reservoir quality rock, and trapping mechanism. Hydrocarbon occurrences in potential reservoir rock are not present near or in the WSA.

High: Evidence indicates all of the following probably are present: hydrocarbon source rock, reservoir quality rock, and trapping mechanism. Hydrocarbon occurrences in potential reservoir quality rock are present near or within the WSA.

Unknown: Sufficient data are not available to make a reasonable estimate of oil or gas potential.

Note: These definitions are based upon geologic considerations only and do not take into account economic conditions.

GLOSSARY

ADMINISTRATIVELY ENDORSED AREA. An area that has been recommended for wilderness designation by a presidential administration.

ALLOCATION (LIVESTOCK GRAZING). The total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or a lessee.

ALLOTMENT. An area of land designated and managed for grazing of livestock.

ALLOTMENT MANAGEMENT PLAN. A documented program which applies to livestock operations on the public lands; prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other affected interests.

ANIMAL UNIT MONTH (AUM). The amount of forage necessary to sustain one cow, one horse, or five sheep for one month. Wildlife Ratio: Forage necessary to sustain 9.6 antelope, 5.8 deer, or 1.9 elk for one month.

AQUIFER. A water bearing bed or stratum of permeable rock, sand, or gravel capable of yielding considerable quantities of water.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural system or processes, or to protect life or provide safety from natural hazards.

BAILY-KUCHLER SYSTEM. A classification system that divides the United States into ecosystems based on climate, vegetation, soils, and landform.

BRACHIOPODA. A phylum of marine, shelled animals with two unequal shells or valves each of which normally is bilaterally symmetrical. Also called lamp shells.

BRYOSOA. Phylum of tiny colonial animals equipped with a lophophore that build calcareous structures of many kinds, mostly marine. Ordovician Recent: The phylum of invertebrate animals which are popularly called "moss animals." (Called Polysoa by some zoologists.)

CHERRY-STEMMED ROAD. A road that enters but does not pass completely through a wilderness study area.

CLOSED. Designated areas and trails where the use of off-road vehicles are permanently or temporarily prohibited. Use of emergency vehicles is allowed.

COMBINED HYDROCARBON LEASE (CHL). A lease issued which entitles the lessee to remove any gas other than helium and nongaseous hydrocarbon substance other than coal, oil shale, or gilsonite. The lessee is granted the exclusive right and privilege to drill for, mine, extract, remove, and dispose of all the oil and gas deposits, except helium gas, in the lands leased, together with the right to construct and maintain thereupon, all works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures necessary to the full enjoyment thereof, for a period of 10 years, and so long thereafter as oil or gas is produced in paying quantities; subject to any unit agreement heretofore or hereafter approved by the Secretary of the Interior, the provisions of said agreement to govern the lands subject thereto where inconsistent with the terms of this lease.

CRITICAL HABITAT. Any air, land, or water area (exclusive of those existing man-made structures or settlements which are not necessary to the survival and recovery of a listed species) and constituent elements thereof, the loss of which would appreciably decrease the likelihood of the survival and recovery of a listed species or a distinct segment of its population. The constituent elements of Critical Habitat include, but are not limited to: physical structures and topography, biota, climate, human activity, and the quality and chemical content of land, water, and air. Critical Habitat may represent any portion of the present habitat of a listed species and may include additional areas for reasonable population expansion.

CRUCIAL RANGE. Range on which a species depends for survival; there are not alternative ranges available due to climate conditions or other limiting factors. May also be called key range.

CULTURAL RESOURCE INVENTORY. A descriptive listing and documentation, including photographs and maps, of cultural resources; included are the processes of locating, identifying, and recording sites, structures, building, objects, and districts through library and archival research, information from persons knowledgeable about cultural resources, and varying levels of intensity of on-the-ground field surveys.

CULTURAL RESOURCE SITE. A physical location of past human activities or events. Cultural resource sites are extremely variable in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Prehistoric and historic sites which are recorded as cultural resources have sociocultural or scientific values and meet the general criterion of being more than 50 years old.

CULTURAL RESOURCES. Those fragile and nonrenewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features that were of importance in human events. These resources consist of (1) physical remains, (2) areas where significant human events occurred—even though evidence of the event no longer remains, and (3) the environmental immediately surround the resource.

ECOSYSTEM. A biological community together with its nonliving environment, forming an interacting system inhabiting an identifiable space.

FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA). Public law 94-579, October 21, 1976. A Law which provides most of BLMs legislated authority, direction, policy and basic guidance.

FECAL COLIFORM. Bacteria that are present in the intestine and feces of warm-blooded animals. Their presence in water indicates fecal contamination.

FULL SUPPRESSION. Taking aggressive action on all fires on or threatening the public lands, with sufficient forces to contain the fire during the early burning period.

GRAZING PERMIT/LEASE. A document authorizing the grazing of a specified number and kind of livestock on a designated area of BLM-managed public land for a specified period.

GLOSSARY

HABITAT MANAGEMENT PLAN (HMP). An officially approved activity plan for a specific geographic area of public land. An HMP identifies wildlife habitat and related objectives, defines the sequence of actions to be implemented to achieve the objectives, and outlines procedures for evaluating accomplishments.

HYDROCARBONS. Organic chemical compounds of hydrogen and carbon atoms which form the basis of all petroleum products.

KARST. Limestone and dolomite areas with a topography peculiar to and dependent on underground solution and the diversion of surface waters to underground routes

KNOWN GEOLOGIC STRUCTURE (KGS). Geologic strata known to contain oil or gas because it has been penetrated by a producing or producible oil or gas well.

LEASABLE MINERALS. Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended.

LEASE (MINERAL). A contract between a landowner and another, granting the latter the right to search for and produce gas, hydrocarbons, or other mineral substances upon payment of an agreed-upon rental.

LIMITED. Designated areas and trails where the use of off-road vehicles is subject to restrictions, such as limiting the number or types of vehicles allowed, dates, and times of use; limiting use to existing roads and trails; or limiting use to designated roads and trails.

LOCATABLE MINERALS. Minerals that may be acquired under the Mining Law of 1872, as amended.

LOGICAL MINING UNIT (LMU). An area of land in which the recoverable coal reserves can be developed in an efficient, economical, and orderly manner as a unit with due regard to conservation of recoverable coal reserves and other resources. An LMU may consist of one or more federal leases and may include intervening or adjacent lands in which the United States does not own the coal. All lands in an LMU shall be under the effective control of a single operator/lessee, be able to be developed and operated as a single operation, and be contiguous.

LONG-TERM. A period of time extending from 10 to 50 years.

MITIGATION MEASURES. Actions which could be taken to lessen the adverse effects of proposed project development upon existing resources.

NONIMPAIRMENT CRITERIA. A series of guidelines which govern surface disturbing activities on lands being studied by BLM for inclusion in the National Wilderness Preservation System. The guidelines require that lands be managed so as to not impair their suitability for designation as wilderness. Any authorized activities must be temporary in nature and not degrade the area's wilderness values. Disturbed areas must be capable of being reclaimed so that they are substantially unnoticeable by the time the Secretary of the Interior makes his recommendation on Wilderness Areas to the President.

OFF-ROAD VEHICLE (ORV). Any motorized vehicle capable of or designed for travel on or immediately over land, water, or other natural terrain.

PALEONTOLOGICAL RESOURCES. Significant fossils of animals and plants that occur on public lands.

POST-FLPMA LEASE. Mineral lease issued after passage of the Federal Land Policy and Management Act on October 21, 1976. These leases contain a wilderness protection stipulation that prohibits any activity on the lease that would impair wilderness suitability.

PRE-FLPMA LEASE. Mineral lease issued before passage of the Federal Land Policy and Management Act on October 21, 1976. These leases contain no wilderness protection stipulation, and may be developed even if doing so would impair wilderness suitability.

PRIMITIVE AND UNCONFINED RECREATION. Nonmotorized and nondeveloped types of outdoor recreational activities.

PRODUCED WATER. Water produced along with oil that must be separated out of the oil before the oil is marketable.

PUBLIC LANDS. Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

RAPTORS. Bird of prey such as hawks, owls and eagles.

RECREATION VISITOR DAY. Recreation use totalling 12 hours by one or more persons.

RIPARIAN HABITAT, AQUATIC (STREAMSIDE). Vegetation communities found in association with streams (both perennial and intermittent), lakes, ponds, and other open water. This unique habitat, comprising less than 1 percent of the land area, is crucial to the continued existence of the fish species known to occur. Streamside vegetation maintains high water tables, stabilizes streambanks, creates quality fishery habitat, and maintains water quality. It is also essential to most terrestrial wildlife species.

RIPARIAN HABITAT, TERRESTRIAL. Vegetation communities found in association with either open water or water close to the surface; includes such habitat features as meadows, aspen stands, and/or other trees and shrubs. This unique habitat is crucial to the continued existence of the majority of the terrestrial wildlife species known to occur. Many species are found nowhere else.

SALABLE MINERALS. Minerals such as common varieties of sand, stone, gravel, and clay that may be acquired under the Materials Act of 1947, as amended.

SCOPING PROCESS. An early and public process for determining the nature, significance, and range of issues to be addressed related to a proposed action.

SEMI-PRIMITIVE MOTORIZED. Areas which are accessible by vehicular travel but which remain essentially undeveloped.

SHORT-TERM. A period of time less than 10 years.

SPECIES, ENDANGERED. An animal or plant whose prospects of survival and reproduction are in immediate jeopardy, and as is further defined by the Endangered Species Act of 1973, as amended.

SPECIES, THREATENED. Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and as is further defined by the Endangered Species Act of 1973, as amended.

STRATEGIC MINERALS. Minerals essential to the national defense for the supply of which, during war, the nation depends wholly or in part on sources outside the United States. Strict measures controlling conservation and distribution of strategic minerals are necessary. Strategic minerals in 1941 included aluminum, chromium, manganese, and quartz crystal.

TAR SAND DEPOSIT. A natural bitumen (oil impregnated) containing or appearing to contain an accumulation of tar sand, separated or appearing to be separated from any other such accumulation.

GLOSSARY

TAR SAND. Any consolidated or unconsolidated rock (other than coal, oil shale, or gilsonite) that either: (1) contains a hydrocarbonaceous material with a gas free viscosity at original reservoir temperature greater than 10,000 centipoise; or (2) contains a hydrocarbonaceous material and is produced by mining or quarrying. Tar sand constitutes one of the largest known nonfluid petroleum resources in the United States. Approximately 90 percent of the United States' tar sand (27 billion barrels) is located in Utah.

TIMBERLANDS. Those sites supporting stands composed of Douglas fir, aspen, ponderosa pine, and cottonwood.

VISUAL RESOURCE MANAGEMENT (VRM). The planning, designing, and implementation of management objectives for maintaining scenic value and visual quality on public lands.

VISUAL RESOURCE MANAGEMENT CLASSES. The five degrees of acceptable visual change within a characteristic landscape:

Class 1. Natural ecological changes and very limited management activity are allowed. Any contrast created within the characteristic landscape must not attract attention. This classification is applied to wilderness areas, wild and scenic rivers, and other similar situations.

Class 2. Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.

Class 3. Contrasts to the basic elements caused by a management activity are evident, but should remain subordinate to the existing landscape.

Class 4. Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color, and texture of the characteristic landscape.

Class 5. This classification is applied to areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the four other classifications. The classification also applies to areas where there is potential to increase

the landscape's visual quality. It would, for example, be applied to areas where unacceptable cultural modification has lowered scenic quality. It is often used as an interim classification until the objectives of another class can be reached.

WATERSHED. A total area of land above a given point on a waterway that contributes runoff water to the flow at that point.

WILDERNESS AREA. An area formally designated by Congress as a part of the National Wilderness Preservation System.

WILDERNESS CHARACTERISTICS. Factors identified by Congress in the Wilderness Act of 1964 which should be used to determine the suitability of land for inclusion into the National Wilderness System. They include: size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of continuous public land or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been affected primarily by the forces of nature, with the imprint of cultural modifications being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation. Congress stated that a wilderness area may also have supplemental values or other features of scientific, educational, scenic, or historical value.

WILDERNESS STUDY AREA (WSA). A roadless area which has been found to have wilderness characteristics.

WITHDRAWAL. Actions which restrict the use of public land and segregate the land from the operation of some or all of the public land and/or mineral laws. Withdrawals are also used to transfer jurisdiction of management to other Federal agencies.

WOODLANDS. Lands producing tree species that are typically utilized as non-sawtimber products and sold in units other than board feet, i.e., pinyon and juniper.

REFERENCES

Barrell, S. S.; and Ross, R. B., Jr.

- 1983 *Mineral Resource Potential of Big Horn Basin, Wyoming Wilderness Study Areas in Abstracts with Programs*. In proceedings, The Geological Society of America, 96th Annual Meeting, Volume 15 No. 6.

Bown, T. M.

- 1980 "The Willwood Formation (Lower Eocene) of the Southern Big Horn Basin Wyoming and its Mammalian Fauna." University of Michigan Papers on Paleontology No. 24.

Cooper, C.

- n.d. "208 Water Quality Management Plan, Big Horn Basin, Wyoming." U. S. Environmental Protection Agency and Wyoming Department of Environmental Quality, Regional Planning Office, Basin, WY.

Evert, et al.

- 1985 "1985 Wyoming Natural Area Needs Workshop Proceedings," Cheyenne, WY.

Herschler E.

- 1982 "Public Comment on the BLM Wilderness Inventory," Cheyenne, WY.

Tetra Tech, Inc.

- 1983 *Geology, Energy and Mineral (GEM) Resource Assessment of the Honeycombs, Cedar Mountain, Medicine Lodge, Alkali Creek and Trapper Canyon WSAs*. Pasadena, CA.

United States Department of Agriculture, Forest Service; and United States Department of the Interior, Geological Survey

- 1976 "Ecoregions of the United States," by Robert G. Bailey (map). Ogden, UT.

United States Department of the Interior, Bureau of Land Management

- 1985a *Buffalo: Preliminary Final Wilderness Environmental Impact Statement*. Casper District Office, WY.
- 1985b *Draft Resource Management Plan: Environmental Impact Statement for the Washakie Resource Area Management Plan*. Worland District Office, WY.

United States Department of the Interior, Bureau of Land Management

- 1984 *Grass Creek/Cody: Draft Wilderness Environmental Impact Statement*. Worland District Office, WY.
- 1983a "Management of Designated Wilderness Areas." *Manual 8560*. Washington, DC.
- 1981b "Recreation Opportunity Spectrum." *Manual 8320*. Washington, DC.
- 1981c *Wilderness Management Policy*. Washington, DC.
- 1981d *Wilderness Review Files*. Washakie Resource Area, Worland District Office, WY.
- 1981e *Wyoming Wilderness Study Areas: A Final Inventory Report*. Cheyenne, WY.
- 1979 *Interim Management Policy and Guidelines for Lands under Wilderness Review*. Original version, to be used with revisions of 1983. Washington, DC.
- 1978 *Wilderness Inventory Handbook: Policy, Direction, Procedures, and Guidance for conducting Wilderness Inventory on the Public Lands*. Washington, DC.

United States Department of the Interior, Geological Survey

- 1983 *Petroleum Potential of Wilderness Lands, Wyoming*. Washington, DC.

Wyoming. Department of Environmental Quality

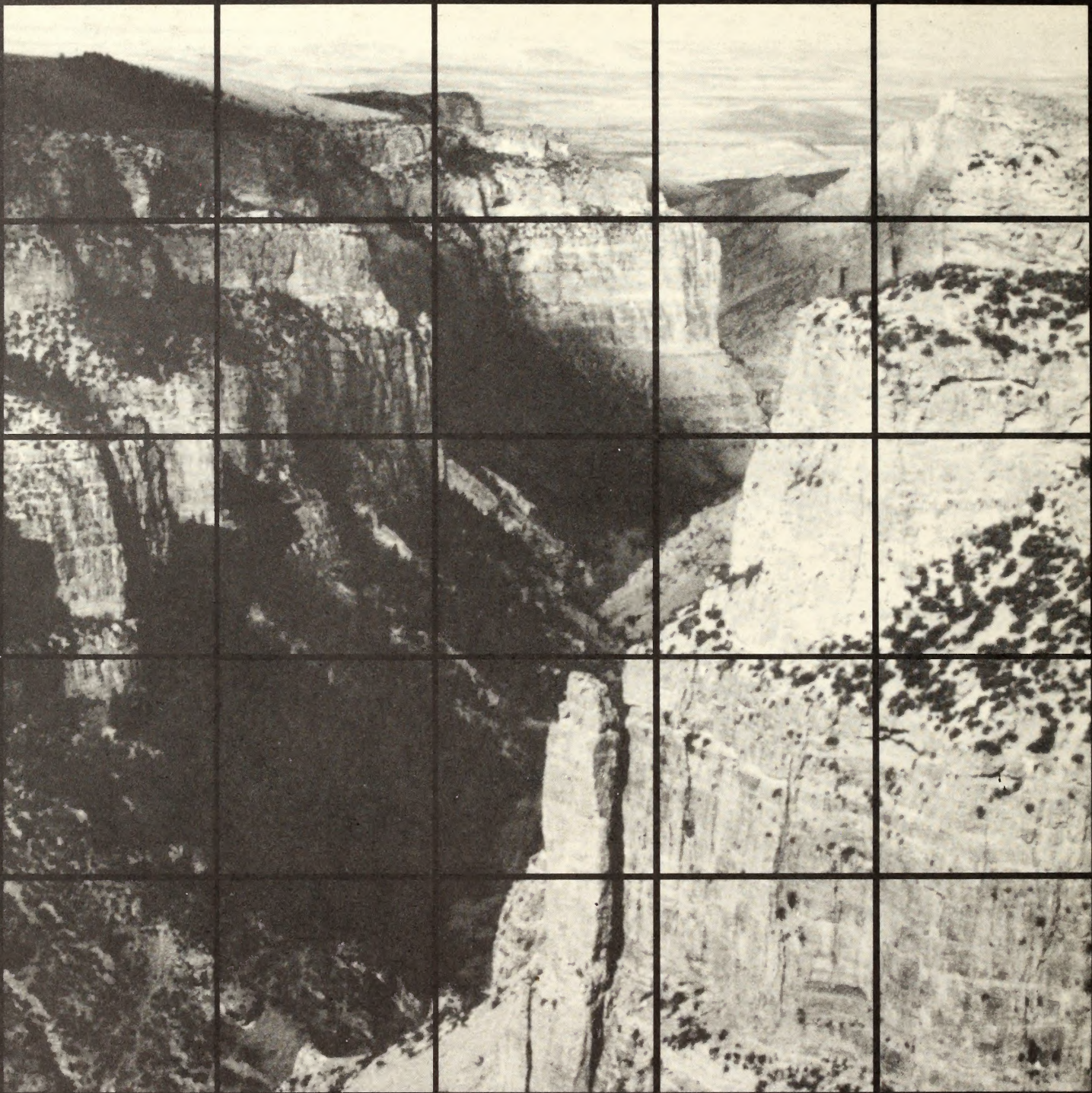
- 1976 "Statewide Water Quality Management Plan for Wyoming." Cheyenne, WY.

Wyoming. Game and Fish Department

- 1978-83 "A Strategic Plan for the Comprehensive Management of Wildlife in Wyoming." Cheyenne, WY.

Wyoming. Geological Survey

- 1982 "Public Comment on the BLM Wilderness Inventory." Laramie, WY.



U. S. Department of the Interior
Bureau of Land Management
Washakie Resource Area, Wyoming

1986